SPECTRUM®

**SynOptics Series 5000
Management Module Guide**

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Preface

Use this guide as a reference for the SynOptics Series 5000 management module and to configure and manage the Ethernet, Token Ring, or FDDI modules within that management module through SPECTRUM. Before reading this guide, become familiar with SPECTRUM's functions. Also, become familiar with any network management and hardware requirements described in the SynOptics Series 5000 Hub documentation.

What Is in This Guide

This Guide contains some differences from most SPECTRUM Management Module Guides. There are no Configuration or Application view chapters. All Application views are available through the Device or Chassis Management views. The Configuration views are discussed in the appendices which are organized by module type, or in chapters organized by DCE and NMM Management. The following chapter and appendix descriptions outline the organization of the *SynOptics Series 5000 Management Module Guide*:

Chapter	Description
Chapter 1 *Introduction*	Describes the device, the management module and model types. This chapter also provides information on accessing device-specific views.
Chapter 2 *Device Views*	Describes the Device views for the SynOptics Series 5000 hub.
Chapter 3 *Chassis Management Views*	Describes the Chassis Management views that are used to manage the SynOptics Series 5000 hub. The views dscribed in this chapter are also accessible through the Application view.
Chapter 4 *NMM Management Views*	Describes the Network Management Module (NMM) management views that are used to manage the SynOptics Series 5000 hub.
Chapter 5 *DCE Management Views*	Describes the Data Collection Engine (DCE) management views that are used to manage the SynOptics Series 5000 hub.
Chapter 6 *Event and Alarm Messages*	Lists and explains the event and alarm messages generated in the Event Log or Alarm Manager for the SynOptics Series 5000 hub chassis and NMM Agents.

Chapter	Description
Appendix A *Ethernet Modules*	Describes the generic views available from the Device view for the SynOptics Series 5000 Ethernet modules.
Appendix B *Token Ring Modules*	Describes the generic views available from the Device view for the SynOptics Series 5000 Token Ring modules.
Appendix C *FDDI Modules*	Describes the generic views available from the Device view for the SynOptics Series 5000 FDDI modules.

Conventions

This guide uses the following conventions:

- Command names appear in **bold**; for example, **Clear** or **Save & Close**.

- Menu selections and buttons appear in **bold**; for example, **Configuration** or **Detail**.

- Buttons appear as shadowed boxeswhen introducing paragraphs describing their use; for example,

Help

- Referenced chapter titles and section headings appear in *italics*.

- Referenced documents appear in ***bold italics***.

- Menu navigation appears in order of selection; for example, **Icon Subviews** -> **Utilities** -> **Application**.

Related SPECTRUM Documentation

Refer to the following documentation for more information on using SPECTRUM:

Report Generator User's Guide

Getting Started with SPECTRUM for Operators

Getting Started with SPECTRUM for Administrators

How to Manage Your Network with SPECTRUM

AutoDiscovery User's Guide

SynOptics Series 5000 Hardware Documentation

Refer to the following documentation for more information on the SynOptics Series 5000 chassis and module hardware. These documents are available from Bay Networks, Inc.

Installation and Reference for the Model 5000 Chassis

Using the Model 5304P Ethernet Host Module

Using the Model 5307 Ethernet Host Module

Using the Model 5307P Ethernet Host Module

Using the Model 5308 Ethernet Host Module

Using the Model 5308A Ethernet Host Module

Using the Model 5308-AF Ethernet Host Module

Using the Model 5308P Ethernet Host Module

Using the Model 5310 Ethernet Network Management Module

Using the Model 5378-F Ethernet Host Module

Using the Model 5390 Ethernet Host Module

Using the Model 5502 Token Ring Host Module

Using the Model 5505 Token Ring Host Module

Using the Model 5505P Token Ring Host Module

Using the Model 5510 Token Ring Network Management Module

Using the Model 5575-F Token Ring Host Module

Using the Model 5575-C Token Ring Host Module

Using the Model 5910-S FDDI Network Management Module

Using the Model 5905 FDDI Host Module

Other Related Documentation

Refer to the following documentation for more information on managing TCP/IP-based networks:

Martin, James, Kathleen Kavanagh Chapman, Joe Leben. ***Local Area Networks: Architectures and Implementations***, 2d ed. Englewood Cliffs, NJ: Prentice Hall, 1994.

Michael, Wendy H., William J. Cronin, Jr., Karl F. Piper. ***FDDI: An Introduction to Fiber Distributed Data Interface***. Woburn, MA: Digital Press, 1992.

Rose, Marshall T. ***The Simple Book: An Introduction to Management of TCP/IP-based Internets***. Englewood Cliffs, NJ: Prentice Hall, 1991.

Tanenbaum, Andrew S. ***Computer Networks***, 3d ed. Englewood Cliffs, NJ: Prentice Hall, 1996.

Chapter 1

Introduction

What Is in This Chapter

This chapter introduces the SPECTRUM management module for the SynOptics Series 5000 hub, (i.e., chassis and modules). This chapter describes the following information:

- What Is in This Chapter
- The SynOptics Series 5000 Hub
- SPECTRUM and the SynOptics Series 5000
- SPECTRUM and the SynOptics Distributed 5000 Series
    - Chassis Types
    - Modules
    - Device View
    - NMM Modules
- SPECTRUM Support
    - Accessing SPECTRUM Views From the Device Icon
    - Accessing Device-Specific Subviews

SynOptics Series 5000 Hub

This section provides an overview of the SynOptics Series 5000 hardware including the hub chassis and boards that can be installed in the chassis.

Chassis

The SynOptics Series 5000 hub is a 14-slot chassis that has Ethernet, Token Ring, and FDDI backplanes. The chassis supports the following network configurations:

- Up to 12 Ethernet Segments accessible from any slot. Ethernet backplane segments are grouped into two banks of six segments. Board attachment points can be configured through switches, local management, or network management stations to access any of the six segments in the bank.

- Up to five Token Ring networks accessible from any slot. Four of the five Token Ring segments can be split into two rings. This configuration provides two groups of four rings and one common ring for a total of nine rings.

- Up to five FDDI networks accessible from any slot. Each FDDI network contains three paths; primary, secondary, and local.

Figure 1-1 shows examples of the chassis backplanes.

Figure 1-1.   SynOptics Series 5000 Chassis Backplanes

FDDI 1-5

Common Management Bus

Bank 1 (1-6)

Ethernet 1-12

Bank 2 (7-12)

Token Ring 1-5
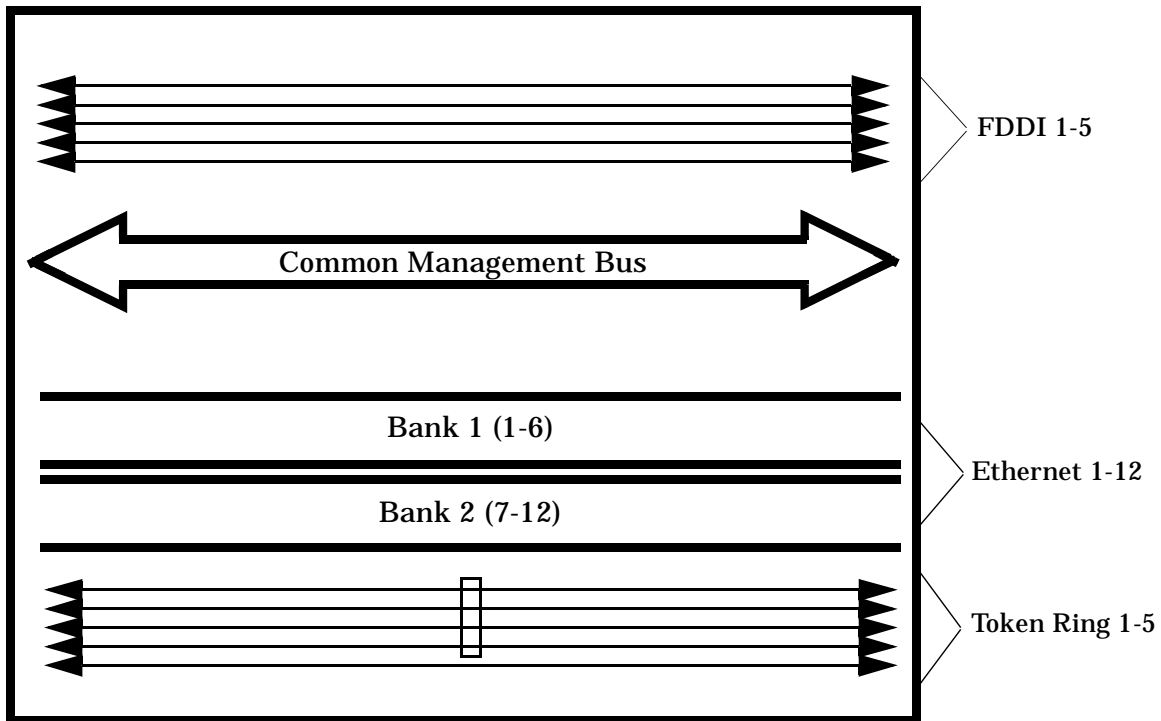
Modules

Various modules can be inserted in a SynOptics Series 5000 chassis. These modules are divided into the following types:

- Network Management Modules (NMMs), which use the common management bus to communicate with other modules installed in the chassis and to manage the network configurations. Ethernet and Token Ring NMMs have Data Collection Engines (DCEs), which are network interfaces used to collect data and statistics from the backplanes.

- Host Modules, which only provide connectivity and can be controlled by any NMM across the common management bus.

- Intelligent Host Modules, which provide connectivity and collect network statistics that can be retrieved by any NMM.

SPECTRUM Support

A model type is a template used to specify attributes, actions, and associations for modeling a particular kind of device. In SPECTRUM, the SynOptics Series 5000 hub is represented by the model type designation of **HubSyn5xxx**. The HubSyn5xxx model type provides support for the SynOptics Series 5000 hub chassis and the modules inserted in the chassis.

A device icon may be created with this model type either manually or by using AutoDiscovery (refer to the ***AutoDiscovery User's Guide***). SPECTRUM will identify and model the chassis and all of the physical modules inserted in the chassis. (See the ***SPECTRUM Views***.)

Full Support/Limited Support

The supported physical modules are only a subset of the complete set of physical modules available from the manufacturer, and that new physical modules are continually being introduced. To provide the maximum information available on any physical module, SPECTRUM uses two levels of model type support: Full support and Limited support.

- Full support indicates that the physical module has been integrated into the management module and all of its functionality has been tested.

- Limited support indicates that the physical module is not yet available for full testing or integration into the management module, but all known functionality has been provided within the model type.

For example, a module having Full support provides an accurate image of the physical module in the Physical Device view, whereas a module having Limited support may use an image from a similar physical module, or a blank image (no port, tab, or screw representations). Blank images still provide right mouse button menu functionality, such as access to the Module Notes facility.

Figure 1-1 provides descriptions and levels of support for the SynOptics Series 5000 physical modules. Figure 1-2 provides the SynOptics naming scheme used for the Series 5000 modules.

Table 1-1. **Supported SynOptics Series 5000 Modules**

Model	Description	Support
5304P	Ethernet Host Module: 10 10BASE-F ports with per-port switching.	Full
5307	Ethernet Host Module: Two 50-Pin Telco D connectors with 12 ports each. One RJ-45, switchable from Telco port 24. One attachment point for the module.	Limited

Table 1-1.   **Supported SynOptics Series 5000 Modules (Continued)**

	Description	Support
5307P	Ethernet Host Module: Two 50-Pin Telco D connectors with 12 ports each. One RJ-45, switchable from Telco port 24. One attachment point per port.	Full
5308	Ethernet Host Module: 24 RJ-45 ports. One attachment point for the module.	Full
5308A	Ethernet Host Module: 24 port UTP. One attachment point for the module.	Limited
5308-AF	Ethernet Host Module: 16 port UTP containing one AUI and one 10BASE-F. One attachment point for the module.	Full
5308P	Ethernet Host Module: 24 RJ-45 ports. One attachment point per port.	Full
5310	Ethernet Network Management Module (NMM).	Full
5310A	Ethernet Network Management Module (NMM).	Limited
5310SA 5310A/SA	Ethernet Network Management Module (NMM).	Limited
5378-F 5378-C	Ethernet Host Module: Four clusters containing one 10BASE-F and 4 UTP ports. Each cluster has an attachment point for the module.	Full
5390	Xylogics Terminal Server.	Limited
5502	Token Ring Host Module: 24 RJ-45 Passive UTP ports, 5 module rings, and 1 local ring. One attachment point for the module.	Limited
5505	Token Ring Host Module: 24 RJ-45 Active UTP/STP ports, 5 module rings, and 1 local ring. One attachment point for the module.	Limited
5505P	Token Ring Host Module: 20 RJ-45 Active UTP/STP ports, 5 module rings, and 1 local ring. One attachment point for the module.	Full
5510	Token Ring Network Management Module (NMM).	Full
5575-F	Token Ring Host Module: 3 clusters. Cluster 1 has one UTP/STP RJ-45 station port, Clusters 2 & 3 each have 2 dual-fiber Ring In/Ring Out ports and 3 UTP/STP RJ-45 station ports. This module provides 5 module rings, and 1 local ring. One attachment point per cluster.	Full
5575-C	Token Ring Host Module: 3 clusters. Cluster 1 has one UTP/STP RJ-45 station port, Clusters 2 & 3 each have 2 DB-9 Ring In/Ring Out ports and 3 UTP/STP RJ-45 station ports. This module provides 5 module rings, and 1 local ring. One attachment point per cluster.	Full

Table 1-1. **Supported SynOptics Series 5000 Modules (Continued)**

	Description	Support
5910S	FDDI Network Management Module (NMM).	Full
5905, 5902, 5904	FDDI Host Module: 6 FDDI UTP ports. One attachment point.	Full

Table 1-2. **SynOptics Series 5000 Module Naming Scheme**

Ist Digit Series	2nd Digit Media Type	3rd Digit Functionality	4th Digit Port Type
5 = 5000	3 = Ethernet	0 = Host Module	1 = Thin Net
	5 = Token Ring	1 = NMM Module	2 = DB-9 (STP)
	9 = FDDI/ FDDI Stack	2 = Bridge	3 = AUI
		3 = Repeater	4 = Fiber
		7 = Cluster	5 = UTP
		9 = Terminal Server	8 = 10BASE-T

SPECTRUM and the SynOptics Distributed 5000 Series

The SynOptics Distributed 5000 (D5000) cascading chassis has some significant differences with the 5000 series. Other than the differences noted in this chapter, the D5000 contains the same functionality as the 5000. The D5000 series supports Ethernet only.

In SPECTRUM, the SynOptics Distributed 5000 hub is represented by the model type name is **HubSyn5DNxxx**.

Chassis Types

The Distributed 5000 Series supports two types of chassis:

- 5DN003 which contains 3 host module slots and 1 NMM slot
- 5DN002 which contains 2 host module slots.

Up to 8 Chassis can be cascaded together, providing up to 27 segments. Each of the 8 chassis can accomodate 3 local segments (24 segments) and 3 cascaded segments to which any attachment can be made.

Figure 1-2 shows an example of the chassis' backplane.

Figure 1-2. **SynOptics Series D5000 Chassis Backplanes**
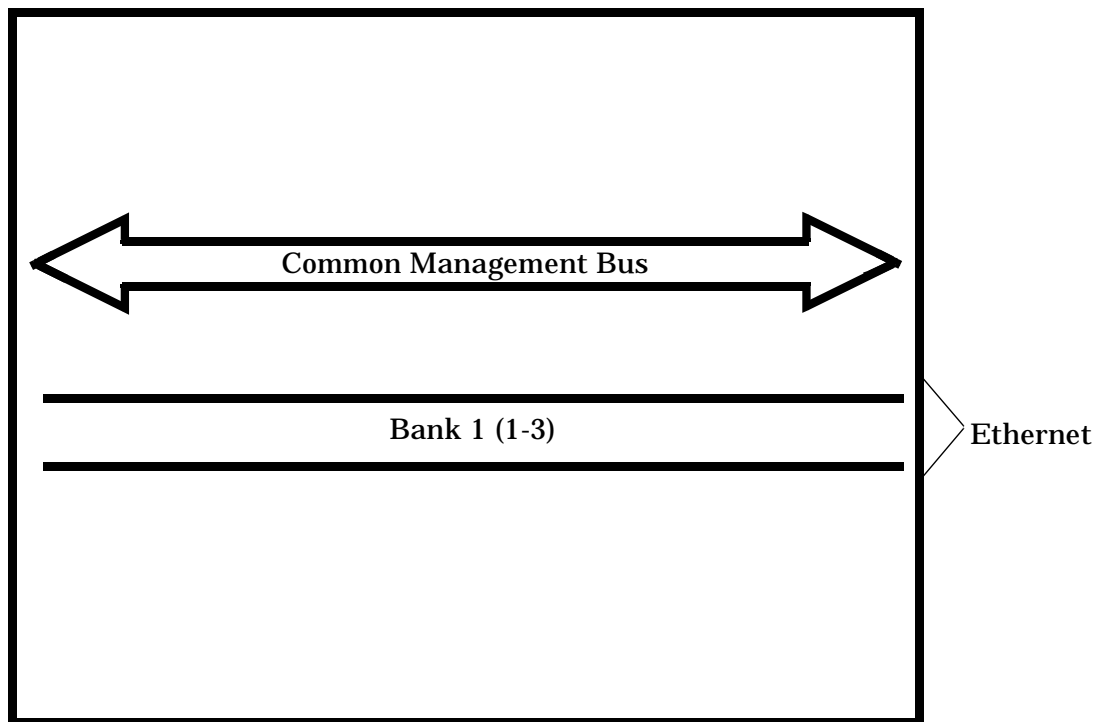
Modules

Six modules are supported by the Distributed 5000 series. Table 1-3 provides descriptions and levels of support for the SynOptics Series D5000 physical modules.

Table 1-3. **Supported Model D5000 Series Modules**

Model	Description	Support
5DN304P	3 Port Host Module (10BASE-FL)	Full
5DN307P	1 PortHost Module (10Base-T Telco)	Full
5DN308P	12 Port Host Module (10Base-T)	Full
5DN308PS	12 Port Host Module (10Base-T) with Bay Secure Lan Access	Full

Table 1-3.   **Supported Model D5000 Series Modules (Continued)**

Model	Description	Support
5DN378P-F	8 Port Host Module (Mixed Media)	Full
5DN310	Network Management Module	Full
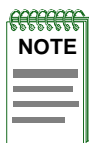
NOTE

If you model the HubSynDN5xxx through AutoDiscovery, the model will be placed in Lost & Found because the IP Address is associated with the NMM Agent.

Device View

Some differences in the D5000 Device view should be noted:

- Multiple cascaded chassis containing boards are displayed instead of just one chassis' board.

- NMM boards always are in the x4 slot (where x is the first digit of the chassis number). The instance on the chassis and boards will change depending on how they are added to the stack.

- For the 5000, ports can be isolated or attached to a segment local to the individual board or to a backplane segment. For the D5000, ports can be isolated, attached to a segment local to the chassis (any port on any board in that chassis can be on the same local segment) or to a cascaded segment that any port from any chassis in the stack can be on.

- If more than one NMM is on a repeater stack, the NMM in the chassis with the lowest number will be active and any others will be in standby mode. Standby NMMs are used for redundancy purposes.

NOTE
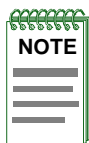
Up to three (3) Data Collection Modules ((DCMs) called N11s) can be added to the NMM to monitor the different cascaded segments.

Figure 1-3 shows an example of a D5000 Logical Device view.

Figure 1-3. **D5000 Logical Device View**
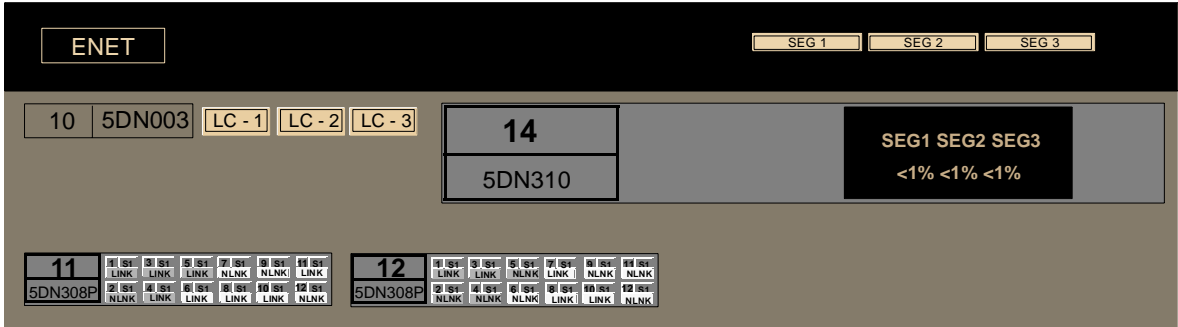
The D5000 Logical Device view contains the same functionality described in Chapter 2, except as previously noted.

NMM Modules

One NMM module provides management for up to 8 cascaded chassis. Only one NMM is active at a time. If there is more than one NMM in the cascaded unit, the NMM located in the lowest numbered unit is active. the other NMM modules are in warm standby. The single NMM module provides access to the NMM Agent views.

Modeling the SynOptics Series 5000 Hub

This section describes the SpectroGRAPH icons that will be used to model and manage a SynOptics Series 5000 hub in SPECTRUM. It also provides an example of setting up a Series 5000 modeling hierarchy in a SPECTRUM Topology view.

SynOptics Series 5000 Icons

The SynOptics Series 5000 management module provides icons that represent the physical hub device model, its interfaces, the NMM agent model, and supported application models. The following sections provide a description of these icons.

Device Icons

The physical hub device model is represented by both small and large device icons. These icons are created with the HubSyn5xxx model type. Once the device icon is created, icons representing the device's interfaces, NMM agent, and application models are created automatically.

Small Device Icons

The small device icon represents the physical hub device within a Topology view. Small device icons provide "at a glance" network information through two condition labels and also provide double-click zones which open more detailed SPECTRUM views. An example of a small device icon is shown below.
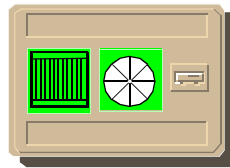
Large Device Icons

The large device icon represents the physical hub device within a Location or Find view. It is used to show the physical location of the device. Large device icons provide "at a glance" network information through two condition labels and provide double-click zones which open more detailed SPECTRUM views. An example of a large device icon is shown below.
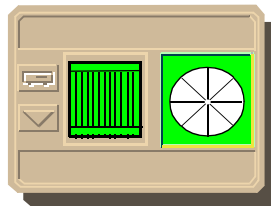
Creating a Device Icon

Three methods exist for creating a SynOptics device icon in SPECTRUM:

• Set individual icon parameters through the **Edit** -> **New Model...** option.

- The **Edit** -> **New Model By IP...** option which uses SPECTRUM default icon parameters.

- A device icon can also be created using **AutoDiscovery** (see the ***AutoDiscovery User's Guide***).

In order for SPECTRUM to properly model the SynOptics Series 5000 hub, it must locate, identify, and model all active NMM Agents. For this to be accomplished, provide SPECTRUM with the community names for all of the active NMM Agents.

- When creating a device icon with the **Edit** -> **New Model...** method, you can provide the community name corresponding to an IP address of the device icon being created and the additional community names for all the active NMM Agents at the time of creation. If you do not provide the NMM Agent community names when creating the device icon with this method, you can add them later with the Chassis Modeling Information view.

- When creating a device icon with the **Edit** -> **New Model By IP...** method, you can only provide the community name corresponding to an IP address of the device icon being created. You must add the additional community names for all of the NMM Agents active on the device through the Chassis Modeling Information view.

- When creating a device icon with AutoDiscovery, add the additional community names for all of the NMM Agents active on the device through the Chassis Modeling Information view.

See Chapter 3, *Chassis Management Views*, for information on using the Chassis Modeling Information view to add additional community names.

Other Icons

This section describes the additional icons that are created automatically when you create a SynOptics Series 5000 device icon. These icons represent the NMM Agent models, Data Collection Engine (DCE) models, and other supported applications such as repeating and SynOptics common applications.

NMM Agent Icons

SPECTRUM creates this icon to represent the agent on an NMM module in the SynOptics Series 5000 chassis. Network management stations can access information and manage the chassis through the NMM Agents. The NMM Agent models "Manage" application models, such as MIB-II. An example of an NMM Agent icon is shown below.
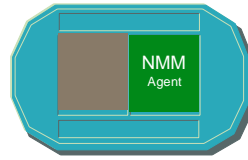
DCE Icons

For Ethernet and Token Ring NMM models, there are corresponding Data Collection Engine (DCE) models which represent network interfaces that are used to collect data and statistics from the backplanes. An example of a DCE icon, as seen in the Logical Device view, is shown below.

Application View Icons

Application View icons represent applications supported by the SynOptics Series 5000 hub. This would include SynOptics proprietary, repeater, or common applications. Examples of application icons are shown below.
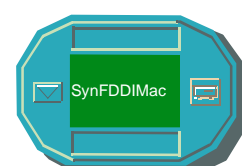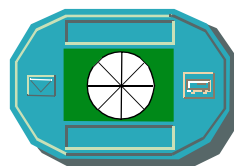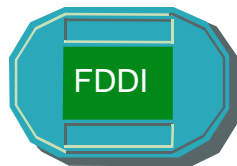
Setting Up the Network Topology

After creating the HubSyn5xxx model, setting up a network topology for the SynOptics Series 5000 hub involves copying and pasting repeater models from

the Application view into their respective LAN_802_3, LAN_802_5, or FDDI network models.

To set up a network topology for the SynOptics Series 5000 hub, do the following:

1. Highlight the large or small device icon and select **Application** from the Icon Subviews menu, or double-click the icon's model type label.

2. **Edit/Copy** the Syn5EnetRptr, Syn5FDDIMac, or Syn5TRRptr icon associated with the network model to be monitored.

3. Access the LAN_802_3, LAN_802_5, or FDDI network model's Topology view by highlighting the network icon and select **Topology** from the Icon Subviews menu, or double-click the icon's down arrow.

4. **Edit/Paste** the Syn5EnetRptr, Syn5FDDIMac, or Syn5TRRptr icon associated with that network model into the network model's Topology view.

Figure 1-4 shows an example of a FDDI and LAN_802_3 network model connected by a router with SynOptics FDDI and Ethernet repeaters models pasted into the network models.

Cabletron recommends creation of the HubSyn5xxx device model in the Location View. The model represents the chassis and is not topologically significant. There is no Device Topology (DevTop) View available for the model as it may represent several repeater elements, each having its own connectivity.

Figure 1-4. **Modeling the SynOptics Series 5000 Repeaters**
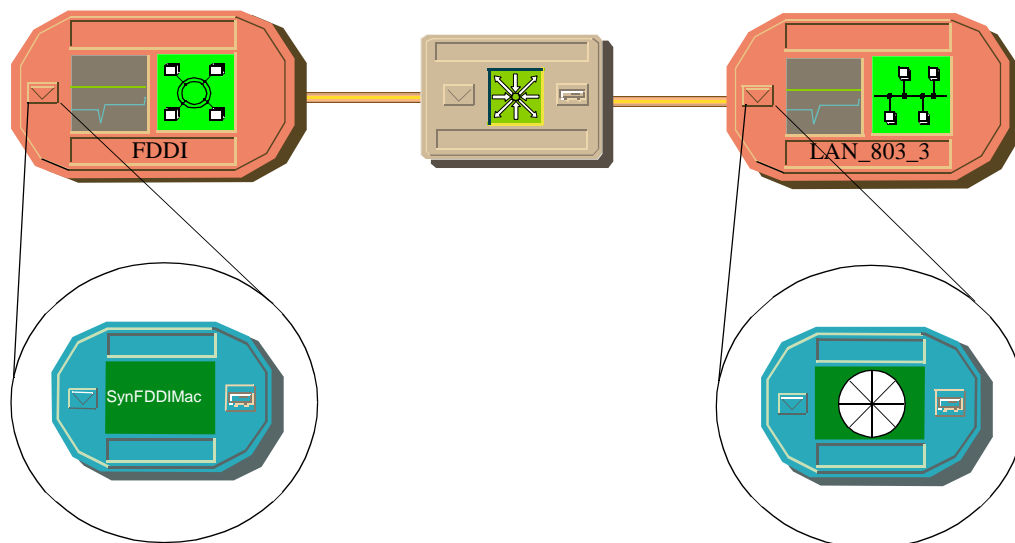
Accessing SPECTRUM Views from the Device Icon

The Device icon provides access to SPECTRUM views that display device-specific information. Access these views using double-click zones (Figure 1-5, page 1-16) or Icon Subviews menus (Figure 1-6, page 1-17).

To access the Icon Subviews menu as shown in Figure 1-6, do the following:

1. Highlight the icon.

2. From the View menu, select **Icon Subviews** or click the applicable mouse button (middle or right). Refer to the ***SPECTRUM Views*** for information on configuring your mouse.

Figure 1-5.   Using Double-Click Zones to Access SPECTRUM Views

Accesses the Device Topology view;
    refer to the ***SPECTRUM Views.***

Model Name

HubSyn5000

Accesses the Device view; see
    Chapter 2, *Device Views.*

Accesses the Performance view;
refer to the ***SPECTRUM Views.***

Accesses the Device view; see
    Chapter 2, *Device Views.*

Model Name

HubSyn5000

Accesses the Performance view;
refer to the ***SPECTRUM Views.***

Accesses the Device Topology view;
    refer to the ***SPECTRUM Views.***

Figure 1-6.   Using the Icon Subviews Menu to Access SPECTRUM Views

Model Name

HubSyn5000

Primary Landscape 0x00400000 - VNM Host - LAN of type Landscape

| * | File | View | Help? |

Go Back
Go Up   ▷
Icon Subviews   ▷
View Path   ▷
New View   ▷
Jump to View   ▷
View History...
Current View Information...
Notes
Jump by Name...
Zoom   ▷
Map Hierarchy

Close   Ctrl+c
Navigate   ▷
Alarms
Performance
Notes...
Utilities
Zoom   ▷
Device   ▷
Acknowledge
Flash Green Enabled
Application
Model Information
NMM Agent View
Acknowledge
Chassis Modeling Info
Chassis Configuration
Chassis Group
Primary Application   ▷

Logical
Physical

Device Views

What Is in This Chapter

This chapter describes the following Device views and subviews available for the SynOptics Series 5000 Hub:

- Logical Device View
  - Backplane Module Icon
  - Ethernet Module Icons
  - Token Ring Module Icons
  - FDDI Module Icons

The Device views provide actual representation of the SynOptics Series 5000 hub configuration. If the configuration changes (for example, a module is pulled from or added to the hub), SPECTRUM modifies the Device view after the next polling cycle to reflect the changes.

Physical Module Representation

The SynOptics Series 5000 Hub Physical Device view shows a physical representation of the hub and the modules installed in the hub. The Physical Device view provides access to information and subviews pertaining to each of the modules.

Logical Module Representation

A SynOptics Series 5000 Device view can also display a logical representation of the hub. The logical module representation provides information about the individual modules and the hub's backplane instead of presenting a physical image.

The leftmost module icon in the Logical Device view represents the hub's backplane and provides information on the connectivity of backplane segments, rings, and paths (Figure 1-1). Other slots contain logical representations of the Ethernet, Token Ring, or FDDI modules installed in the hub. A logical module is divided into several areas, one representing module information and others representing information about each port, cluster, segment, and/or attachment on the module.

The Backplane Module

The backplane module contains icons representing Ethernet backplane segments, Token Ring backplane rings, and FDDI backplane paths. Each backplane icon displays usage through a color scheme. The backplane representation is broken down into the following areas:

Module Identifier
Identifies the module type and provides double-click access the Backplane Notes view.

Protocol Identifier
Identifies the protocol type of the backplane segments following it, (i.e., Ethernet, Token Ring, or FDDI). The Ethernet Protocol Identifier provides double-click access to the Ethernet Backplane Segment Statistics view. The Token Ring Protocol Identifier provides double-click access to the Split/Join Backplane Rings view described later in this chapter. Token Ring backplane rings can be joined or split through the backplane module. You can view Ethernet backplane statistics, an Ethernet Redundancy Table for entire chassis, TR FPU statistics and an TR RI/RO Extension Table for the entire chassis.

Segment, Ring, or Path Identifier

Identifies which segment this model represents, (i.e., Ethernet, Token Ring, and FDDI). The Ethernet Segment Models provide double-click access to the Segment Performance view. The Token Ring or FDDI Path Models have no double-click zone. All segment, ring, and path models also change color to represent their status. Table 2-1 lists each possible status and its corresponding color:

Table 2-1. **Status Definitions**

Status	Description
Highlighted	Orange
Normal State	Off-White
Inactive	Dark Gray

Token Ring Segment Identifiers also display current Ring Speed if the backplane ring has an attachment.

Backplane Segment Color Schemes

The Logical Device view includes a color scheme that allows quick determination of which attachments (clusters, single module, or port attachments) are connected to a particular backplane segment, ring, or path. After clicking the desired backplane segment, ring, or path identifier to select it, the identifier changes color, along with all associated attachments on all the modules installed in the hub. To deselect the segment, ring, or path and its corresponding attachments, click the identifier again. It is not possible to deselect an attachment by clicking it if it has been highlighted through a backplane segment, ring, or path identifier.

Click a previously highlighted attachment to select it, and the attachment changes color along with the corresponding backplane segment, ring, or path identifier. No other attachments connected to the segment, ring, or path will change color unless the segment, ring, or path identifier itself is selected. To deselect the attachment and the corresponding segment identifier, click the attachment again.

If a segment, ring, or path identifier has been highlighted by selecting one or more attachments and the identifier is clicked, control of the color scheme is given over to the identifier. All associated attachments that are not already highlighted change color, and cannot revert to normal until the segment is clicked again.

Backplane Menu Selections

Positioning the cursor on the Module Identifier, Protocol Identifier, or on a Segment Identifier, and pressing the right mouse button accesses the Icon Subviews menu for the selected area of the logical module. Another way to access the Icon Subviews menu is by clicking the Module Identifier, Protocol Identifier, or a segment, which highlights the model, and then selecting **Icon Subviews** from the view menu.

Redundancy Table

The Redundancy Table provides redundancy status and control for each redundancy-capable port in the Series 5000 chassis. Only the following types of redundancy-capable ports appear in the table:

- Ports with remote fault signaling capability
- Ports without remote fault signaling capability which depend on link status to provide redundancy

To access the Redundancy Table, do the following:

1. Within the Logical Device view, highlight the "ENET" icon.

2. From the Icon Subviews menu, select **Redundancy Table**.

or:

1. Within the Application view, highlight the Syn5EnetApp Icon.

2. From the Icon Subviews menu, and select **Redundancy Table** .

The Redundancy Table provides the following information:

Last Change
Displays the "sysUpTime" value when the last change to any Redundancy Table entry was detected.

Module
Displays the slot in the hub containing the board on which the port is located.

Port
Displays the number of the port on the board.

Capability

Displays the redundant-capability of the port. Table 2-2 lists the possible values and their descriptions:

Table 2-2. **Redundant-capability Values**

Value	Description
hwRedOnly	hardware redundancy only
swRedOnly	software redundancy only
hwAndswRed	both hardware and software redundancy

A value of "hwRedOnly" and "hwAndswRed" indicates that the port is capable of being configured into a hardware-redundant pair. A value of "swRedOnly" or "hwAndswRed" indicates that the port is capable of being configured into a software-redundant pair.

Redundancy Mode
Displays the redundancy mode of the port. Table 2-3 lists possible values and their descriptions:

Table 2-3. **Redundancy Mode Values**

Value	Description
standalone	The port is not in any redundant pair.
hwActive	The port is the active companion in a hardware-redundant pair.
hwStandby	The port is the standby companion in a hardware-redundant pair.
swActive	The port is the active companion in a software-redundant pair.
swStandy	The port is the standby companion in a software-redundant pair.

Table 2-4 lists and describes values that can be written to the device to change redundancy mode:

Table 2-4. **Values That Change Redundancy Mode**

Value	Description
standalone	Causes the redundant pair to be broken up.
hwActive	If the previous value was "hwStandby", this value causes the port to become the active port in the hardware-redundant pair, resulting in a switchover.

Table 2-4. **Values That Change Redundancy Mode (Continued)**

Value	Description
hwStandby	If the previous value was "hwActive", this value causes the port to become the standby port in the hardware-redundant pair, resulting in a switchover.
swActive	If the previous value was "swStandby", this value causes the port to become the active port in the software-redundant pair, resulting in a switchover.
swStandy	If the previous value was "swActive", this value causes the port to become the standby port in the hardware-redundant pair, resulting in a switchover.

Changing this field to "hwActive" or "hwStandby", creates a hardware-redundant pair. Changing this field to "swActive" or "swStandby", creates a software-redundant pair.

Operational Status
Displays the redundancy status of the port. Table 2-5 lists possible values and their descriptions:

Table 2-5. **Redundancy Status Values**

Value	Description
other	none of the following
ok	no faults detected
localFault	The local port has sensed a fault condition.
remoteFault	The remote port has sensed a fault condition.

Either a "localFault" or "remoteFault" condition causes a redundant port pair to switchover. If the port does not belong to a redundant pair, a value of "other" is displayed.

If the redundant link consists of ports without remote fault capability, the value "remoteFault" is not reported and the value "localFault" implies that the link is off.

Faults
Displays the number of local or remote faults on this port. This counter increments whenever there is a transition between a fault and no-fault state.

Companion Module
Identifies the slot in the hub containing the board having the other port in the redundant pair. If this port is hardware-redundant capable, this field displays the slot number of the potential redundant companion even if it is in

standalone mode. This allows a network administrator to determine the location of the potential redundant companion as it is fixed by the board's hardware.

Companion Port
Identifies the number of the other port in the redundant pair. If this port is hardware-redundant capable, this field displays the slot number of the potential redundant companion even if it is in standalone mode. This allows a network administrator to determine the location of the potential redundant companion as it is fixed by the board's hardware.

Double-click any entry in the Redundancy Table to access the Port Redundancy View. This view contains the following information:

Split/Join Backplane Rings

This view allows splitting of five Token Ring backplane segments into nine rings or join the nine Token Ring backplane segments into five rings.

To access this view, do the following:

1. Within the Logical Device view, highlight the Token Ring Module Icon.

2. From the Icon Subviews menu, select **Split/Join Backplane Rings**.

To split the five Token Ring backplane segments into nine rings, click the **split** button and then click the **Apply** button.

To join the nine Token Ring backplane segments into five rings, click the **join** button and then click the **Apply** button.

Ring In/Ring Out Extension Table

This table provides information about each Ring In/Ring Out pair on a board. The number of entries is determined by the number of existing Ring In/Ring Out pairs. Boards without Ring In/Ring Out pairs do not have entries in the table.

To access this table, do the following:

1. Within the Logical Device view, highlight the Token Ring Module Icon.

2. From the Icon Subviews menu, select **RI/RO Extension Info Table**.

The Ring In/Ring Out Extension Table provides the following information:

Current Number of Entries
Displays the current number of entries in the Ring In/Ring Out Extension Table.

Last Change
Displays the "sysUpTime" value when the last change to any Ring Extension Table entry was detected.

Double-click an entry in the table to access a Ring In/Ring Out pair-specific information view which provides the following information:

Module
Displays the slot in the hub chassis containing the board on which the Ring In/Ring Out pair is located.

Ring
Displays the logical number of the ring to which the Ring In/Ring Out pair connects.

Cluster
Displays the cluster number where the Ring In/Ring Out pair is located on the board.

Secondary Upstream Neighbor
Displays the secondary upstream neighbor address as read by the Frame Processing Unit that is located between the Ring In/Ring Out ports.

RI/RO Extension Pair
Displays the index of the Ring In/Ring Out extension pair on the board. The value is between "1" and the number of Ring In/Ring Out pairs on the board.

Ring In Port Number
Displays the port number of the Ring In port.

Ring Out Port Number
Displays the port number of the Ring Out port.

Ring In Upstream Neighbor Address
Displays the upstream neighbor address for this Ring In port.

Ring Out Upstream Neighbor Address
Displays the upstream neighbor address for this Ring Out port.

Ring In Phantom Status
Displays the phantom status of the Ring In port. Table 2-6 lists possible values and their descriptions:

Table 2-6. **Phantom Status Values**

Value	Description
other	status unknown
noPhantom	no phantom signal
phantom	Phantom is on.

Ring Out Phantom Status
Displays the phantom status of the Ring Out port. Possible values are the same as Ring In Phantom Status.

Ring In Wrap Status
Displays the wrap status of the Ring In port. Table 2-7 lists possible values and their descriptions:

Table 2-7. **Ring In Wrap Status Values**

Value	Description
other	wrap status unknown
wrap	Port is wrapped.
connect	Port is unwrapped.

Ring Out Wrap Status
Displays the wrap status of the Ring Out port. Possible values are the same as Ring In Wrap Status.

Ethernet Modules

Ethernet NMM (Network Management Module) modules have DCE (Data Collection Engine) icons which display their backplane segment attachment and current load on the monitored segment.

Ethernet Host modules have port icons which display link and partition status. Host modules also have attachment icons and local channel icons.

Ethernet Performance Views

Two views are available which display Ethernet backplane performance information. The Ethernet Backplane Segment Statistics view is accessed by highlighting the Enet port icon and selecting Segment Performance from the Icon Subviews menu. Access the SynOptics 5000 Ethernet Segment Performance view by double-clicking any segment beneath the Enet port icon.

These views contain the following information:

Ethernet Backplane Segment Statistics View

This view lists all Ethernet segments on the backplane and provides the following buttons and fields for each:

Update

Allows you to update the information on the table.

Totals

Displays the total errors as described below.

Set/Clear Filter

Allows setting of a value against which a selected column is filtered, or clear a previously set filter value.

Sort Up/Down/Unsort

Allows sorting of the table, based on the values in a selected column.

Src Index
Displays the index of the entry in the table.

Good Frames
Displays the total number of good frames detected on this segment.

Collisions
Displays the total number of collisions detected on this segment.

Alignment
Displays the total number of misaligned packets detected on this segment.

FCS Errors
Displays the total number of frames received that are an integral number of octets in length but do not pass the Frame Check Sequence (FCS).

Runts
Displays the total number of runt packets received by this segment. A runt packet is one byte less than the standard Ethernet frame of 64 bytes, not including preamble.

Giants
Displays the total number of giant packets received by this segment. A giant packet exceeds 1518 bytes, not including preamble.

OOW Collisions
Displays the total number of Out Of Window (OOW) collisions detected on this segment.

Segment Detail

Opens the Segment Detail view. The Segment Detail view contains all the information listed above as well as a button for **Additional Statistics**. The **Additional Statistics** and the **Segment Additional Detail** button both display the following information:

Bcast Frames
Displays the total number of broadcast frames detected on this segment.

Mcast Frames
Displays the total number of multicast frames detected on this segment.

TotalFragments
Displays the total number of fragmented frames detected on this segment.

Long Events
Displays the number of times that MAU jabber lockup protection (MJLP) was detected due to transmission of data that exceeded 5 msec in duration (Octet count greater than MaxFrame size). This information can be useful in identifying faulty stations.

Short Events
Displays the number of fragments detected with Activity Duration less than Short Event MaxTime. Short Event MaxTime is greater than 74 bit times and less than 82 bit times.

Rate Mismatches
Displays the number of occurrences of out of spec rate bits. This indicates the number of times the FIFO buffer over-runs or under-runs due to transmission rate errors.

Backoff Fails
Displays the number of times a frame was received on this port with collision and port activity time of a value greater than 552 to 560 bit time.

Auto Partitions
Displays the number of times that this segment was auto-partitioned by the hardware. This condition occurs when 32 consecutive collisions are detected on the port.

Short IPGs
Displays the number of occurrences of too short Inter-Packet Gaps (IPGs) before good packets detected.

Null Frames
Displays the total number of empty frames detected on this segment.

Three buttons at the bottom of this graph allow you to select the way in which the data is represented (Total, Delta, and Accum). Another button, Clear, works in conjunction with the Accum button. For more information on these buttons, refer to the ***SPECTRUM Views***.

Ethernet Segment Performance View

The Ethernet Segment Performance view displays a Multi-Attribute Line Graph that provides a general indication of network activity for the Ethernet backplane. The attributes displayed are pre-selected and use colors to represent different statistics. The attributes are displayed as current values, average values, and peak values. The peak values display the highest statistical value reached since SPECTRUM began logging and the current time, or the time at which the peak value was reached if one exists. The SynOptics 5000 Ethernet Segment Performance view displays the foregoing values for Load, Frame Rate, %Error, and %Collision.

Segment
Displays the number of the segment described in the view.

Monitored Segment
Displays a number indicating the segment to which the backplane is currently connected and is monitoring.

Lin/Log

Toggles the right axis of the graph between linear and logarithmic representation.

Graph Properties

This field contains a button which toggles to the three following functions: Scroll to Date-Time allows setting of the viewing area of the graph to begin at a specified date and time. Change Time Scale allows specification of the Y axis time scale for the graph. Data Logging allows logging of polled data in the database.

Detail

Accesses the Segment Detail view, described previously in this section.

Token Ring Modules

Token Ring NMM (Network Management Module) modules have DCE (Data Collection Engine) icons which display their Backplane Ring attachment and current load on the monitored ring.

Token Ring Host modules have port icons which display Insertion Status, Wrap Status, and Port Type (where applicable). Hosts also have Attachment Icons, Module Ring Icons, and Local Ring icons.

The following views provide performance information for the Token Ring Backplane:

Token Ring Statistics

Access this view by selecting **Performance** from the Icon Subviews menu. This view contains the following information:

Source Index
Displays the index of the entry in the table.

Upstream Neighbor
Indicates the number of this ring's nearest upstream neighboring ring.

Update

Allows update of the information in the table.

Totals

Displays the total number of errors.

Set/Clear Filter

Allows setting of a value against which a selected column is filtered, or clear a previously set filter value.

Sort Up/Down/Unsort

Allows sorting of the table based on the values in a selected column.

Src Index
Displays the index of the entry in the table.

Good Frames
Displays the total number of good frames on this ring.

Bad Frames
Displays the total number of frames with errors detected on this ring.

Good Error Report Frames
Displays the total number of Soft Error Report frames, excluding frames with errors, detected on this ring.

Beacon Frames
Displays the total number of beacon frames, including frames with errors, detected on this ring.

Purge Frames
Displays the total number of Ring Purge frames, including frames with errors, detected on this ring.

Claim Token Frames
Displays the total number of Claim Token frames, including frames with errors, detected on this ring.

Token Ring Performance Statistics

Accesses the SynOptics 5000 Token Ring Performance Statistics view. This view contains a graph with the information detailed below in Table 2-8.

Table 2-8.   **Token Ring Performance Statistics**

Total Frames	MAC & LLC Frames	Other Frames
Total Good	MAC	Good Error Report
Total Bad	LLC NonUcast	Beacon
Total	LLC Ucast	Ring Purge
------------------------	Total	Claim Token
------------------------	------------------------	Total

The entries under Other Frames are described above. Total Frames and MAC & LLC Frames are described as follows:

Total Good
Displays the total number of LLC and MAC frames, excluding frames with errors, detected on this ring.

Total Bad
Displays the total number of LLC and MAC frames with errors detected on this ring.

MAC
Displays the total number of MAC frames, including frames with errors, detected on this ring.

LLC NonUcast
Displays the total number of LLC frames, including frames with errors, detected on this ring that were directed to an LLC broadcast address (i.e.,

0xFFFFFFFFFFFF or 0xC000FFFFFFFF) or a local or global multicast, or functional address (i.e., 0xC000xxxxxxxx).

LLC Ucast
Displays the total number of LLC frames, including frames with errors, detected on this ring that were directed to an LLC unicast address.

Three buttons at the bottom of this graph allow you to select the way in which the data is represented (Total, Delta, and Accum). Another button, Clear, works in conjunction with the Accum button. For more information on these buttons, refer to the ***SPECTRUM Views***.

FDDI Modules

FDDI NMMs have Port icons which display Port Number, Line State, and Connect State. The associated SMT and MAC icons are also displayed and provide access to the SMT and MAC views described in this section.

FDDI Hosts have Port icons which display Port Number, Line State, and Connect State.

FDDI SMT Configuration View

To access this view, do the following:

1. Highlight the SMT icon on the FDDI NMM logical module.

2. Selecting **SMT Configuration** from the Icon Subviews menu.

The view displays the following information:

SMT Index
Displays a unique value for each SMT. The value for each SMT must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.

Station ID
Used to uniquely identify an FDDI station.

Operation Version
Displays the version that this station is using for its operation. The value of this variable is 2 for this SMT revision.

Highest Version
Displays the highest version of SMT that this station supports. This value is 2.

Lowest Version
Displays the lowest version of SMT that this station supports. This value is 2.

MIB Version
Displays the version of the FDDI MIB of this station. The value of this variable is 1 for this SMT revision.

MAC Count
Displays the number of MACs in this station or concentrator.

Non-Master Count
The value of this variable is the number of A, B, and S ports in this station or concentrator. This number includes MAC instances that are not supported by underlying hardware.

Master Count
Displays the number of M Ports in a node. If the node is not a concentrator, the value of the variable is zero.

Available Paths
Displays a group of read-only indicator buttons that indicate the PATH types available for the station. Possible values are; primary, secondary, and local.

Bypass Present
Displays a flag indicating if the station has a bypass on its AB port pair.

ECM State
Indicates the current state of the ECM state machine. The possible values are; Out, In, Trace, Leave, Path_Test, Insert, Check, and Deinsert.

CF State
Displays the attachment configuration for the station or concentrator. The possible values are; Isolated, Local_a, Local_b, Local_ab, Local_s, Wrap_a, Wrap_b, Wrap_ab, Wrap_s, C_wrap_a, C_wrap_b, C_wrap_s, and Thru.

Remote Disconnect Flag
Displays a flag indicating that the station was remotely disconnected from the network as a result of receiving a disconnect in a Parameter Management Frame. A station requires a Connect Action to rejoin and clear the flag.

Station Status
Displays the current status of the primary and secondary paths within this station.

Peer Wrap Flag
Displays the value of the Peer Wrap Flag in CFM.

Time Stamp
Displays the value of Time Stamp.

Transition Time Stamp
Displays the value of the Transition Time Stamp.

Set Count
Displays a count incremented in response to a Set operation on the MIB. The transition timestamp is not included.

Last Set Station ID
Displays the ID of the station which performed the last set.

Configuration Capabilities
Displays a group of read-only indicator buttons that indicate the configuration capabilities of a node. Table 2-9 lists possible values and their descriptions.

Table 2-9. **Configuration Capabilities**

Value	Description
holdAvailable	Indicates the support of the optional Hold function.
cf-wrap-ab	Indicates that the station has the capability of performing a wrap_ab.

FDDI SMT Parameters View

To access this view, do the following:

1. Highlight the SMT icon on the FDDI NMM logical module.

2. Select **SMT Parameters** from the Icon Subviews menu.

The view displays the following information:

Intelligent Insertion Policy
Displays the Intelligent Insertion policy used by the SMT on this concentrator. Possible values are "on" and "off". The default is "on".

Intelligent Insertion Mask
Displays the Intelligent Insertion Policy Bit Mask.

Trace_Max Expiration
The reference Trace_Max.

Status Report Policy
If true, indicates that the node will generate Status Reporting Frames for its implemented events and conditions. It has an initial value of "true".This variable determines the value of the SR_Enable Flag.

Notify Timer
Displays the timer, expressed in seconds, used in the Neighbor Notification protocol. It has a range of 2 seconds to 30 seconds, and its default value is 30 seconds.

Connection Policy
Displays a group of read-only indicator buttons representing the connection policies in effect on a node. A station sets the corresponding bit for each of the connection types that it rejects.

Configation Policy
Displays a read-only indicator button that indicates the configuration capabilities of a node.

User Data
Contains 32 octets of user defined information. The information shall be an ASCII string.

Station Action
When read, this object always returns a value of "other". Table 2-10 lists the possible values and their descriptions.

Table 2-10. **Station Action Values**

Value	Description
other	Results in an error.
connect	Generates a connect signal to ECM to begin a connection sequence.
disconnect	Generates a disconnect signal to ECM and sets the Remote Disconnect Flag.
path-test	Initiates a station Path_Test. The Path_Test variable is set to "Testing". The results of this action are not specified in this standard.
self-test	Initiates a station Self_Test. The results of this action are not specified in this standard.
disable-a	Causes a PC_Disable on the A port if the A port mode is peer.
disable-b	Causes a PC_Disable on the B port if the B port mode is peer.
disable-m	Causes a PC_Disable on all M ports.

Manufacturer Data
Contains 32 octets of manufacturer information. The information is an ASCII string. The first 3 octets are the OUI. The next 29 octets are the actual specific manufacturer data.

FDDI SMT LER Thresholds Table

To access this view, do the following:

1. Highlight the SMT icon on the FDDI NMM logical module.

2. Select **SMT LER Thresholds** from the Icon Subviews menu. (Double-click any entry to access the Port LER Thresholds view.)

The view displays the following information:

SMT Index
Displays the value of the SMT index associated with this port.

Port Index
Displays a unique value for each port within a given SMT. The value for each port must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.

LCT Failure Count
Displays the count of the consecutive times the link confidence test (LCT) has failed during connection management.

LER Estimate
Displays a long term average link error rate. It ranges from 10^{**-4} to 10^{**-15} and is reported as the absolute value of the base 10 logarithm.

LEM Reject Count
Displays a link error monitoring count of the times that a link has been rejected.

LEM Error Count
Displays the aggregate link error monitor error count, set to zero only on station initialization.

LER Cutoff
Displays the link error rate estimate at which a link connection will be broken. It ranges from 10^{**-4} to 10^{**-15} and is reported as the absolute value of the base 10 logarithm. The default is 7.

LER Alarm
Displays the link error rate estimate at which a link connection will generate an alarm. It ranges from 10^{**-4} to 10^{**-15} and is reported as the absolute value of the base 10 logarithm of the estimate. The default is 8.

LER Condition
Displays the LER Condition (reported with the Status Report Frames (SRF)).

FDDI MAC Configuration View

To access this view, do the following:

1. Highlight the MAC icon on the FDDI NMM logical module.

2. Select **MAC Configuration** from the Icon Subviews menu.

The view displays the following information:

SMT Index
Displays the value of the SMT index associated with this MAC.

MAC Index
Displays the index variable for uniquely identifying the MAC object instances.

Frame Status Functions
Displays a group of read-only indicator buttons that indicate the MAC's optional Frame Status processing functions. Possible values are; fs-repeating, fs-setting, or copying.

Available Paths
Displays a group of read-only indicator buttons that indicate the path types available for the station. Possible values are; primary, secondary, and local.

Current Path
Indicates the path into which this MAC is currently inserted.

Upstream Neighbor
Displays the MAC's upstream neighbor's long individual MAC address. It has an initial value of the SMT- Unknown-MAC Address and is only modified as specified by the Neighbor Information Frame protocol.

Downstream Neighbor
Displays the MAC's downstream neighbor's long individual MAC address. It has an initial value of the SMT- Unknown-MAC Address and is only modified as specified by the Neighbor Information Frame protocol.

Old Upstream Neighbor
Displays the previous value of the MAC's upstream neighbor's long individual MAC address. It has an initial value of the SMT-Unknown- MAC Address and is only modified as specified by the Neighbor Information Frame protocol.

Old Downstream Neighbor
Displays the previous value of the MAC's downstream neighbor's long individual MAC address. It has an initial value of the SMT- Unknown-MAC Address and is only modified as specified by the Neighbor Information Frame protocol.

Duplicate Address Test
Displays the Duplicate Address Test flag, Dup_Addr_Test.

Downstream PORT Type
Indicates the PC-Type of the first port that is downstream of this MAC (the exit port).

SMT Address
Displays the 48-bit individual address of the MAC used for SMT frames.

RMT State
Indicates the current state of the RMT State Machine. The possible values are; isolated, non_op, ring_op, detect, non_op_dup, ring_op_dup, directed, and trace.

Duplicate Address Flag
Displays the RMT flag Duplicate Address.

UNA Duplicate Address Flag
Displays a flag which is set when the upstream neighbor reports a duplicate address condition. It is cleared when the condition clears.

Frame Condition
When set, this field indicates that the MAC Frame Error Condition is present. It is cleared when the condition clears and on station initialization.

Hardware Present
Indicates the presence of underlying hardware support for this MAC object.

FDDI MAC Parameters View

To access this view, do the following:

1. Highlight the MAC icon on the FDDI NMM logical module

2. Select **MAC Parameters** from the Icon Subviews menu.

The view displays the following information:

SMT Index
Displays the value of the SMT index associated with this MAC.

MAC Index
Displays the index variable for uniquely identifying the MAC object instance.

SMT Address
Displays the 48-bit individual address of the MAC used for SMT frames.

T_Max Capability
Indicates the maximum time value that this MAC can support.

TVX Capability
Indicates the maximum time value that this MAC can support.

T_Req
This variable is the T_Req_value passed to the MAC. It is reported as a two-complement number as described in the MAC standard. Without having detected a duplicate, the time value of this variable shall assume the maximum supported time value which is less than or equal to the time value. When a MAC has an address detected as a duplicate, it may use a time value

for this variable greater than the time value. A station shall cause a claim when the new T_Req may cause the value of T_Neg to change in the claim process, (i.e., time value new T_Req < T_Neg, or old T_Req = T_Neg).

T_Neg
This variable is reported as a twos-complement number as described in the ANSI MAC standard.

T_Max
This variable is passed to the MAC. It is reported as a twos-complement number as described in the MAC standard. The time value of this variable shall assume the minimum supported time value which is greater than or equal to the time value.

Tvx_Value
This variable is passed to the MAC. It is reported as a twos-complement number as described in the MAC standard. The time value of this variable shall assume the minimum supported time value which is greater than or equal to the time value.

Frame Error Threshold
Displays a threshold for determining when a MAC Condition report shall be generated. Stations not supporting variable thresholds shall have a value of 0 and a range of (0..0).

Frame Error Ratio
Displays the value of the ratio.

MA Unit Data Available
Takes on the value of the MAC_Avail flag defined in RMT.

MA Unit Data Enable
This variable defines a vendor-specified characteristic of this managed object class. This extension is based on the vendor's OUI. This variable shall not duplicate or redefine any variable listed in the MIB.

Not Copied Flag
Indicates that the Not Copied condition is present when read as "true". This flag will set to "false" when the condition clears and on station initialization.

Not Copied Threshold
Displays a threshold for determining when a MAC condition report shall be generated. Stations not supporting variable thresholds shall have a value of 0 and a range of (0..0).

FDDI MAC Detail View

To access this view, do the following:

1. Highlight the MAC icon on the FDDI NMM logical module.

2. Select **MAC Detail** from the Icon Subviews menu.

The view contains the following information:

SMT Index
Displays the value of the SMT index associated with this MAC.

MAC Index
Provides an index variable for uniquely identifying the MAC object instances.

Token Count
Displays a count that should as closely as possible match the number of times the station has received a token (total of non- restricted and restricted) on this MAC. This count is valuable for determination of network load.

Tvx Expired Count
Displays a count that should as closely as possible match the number of times that TVX has expired.

Late Count
Displays a count that should as closely as possible match the number of TRT expirations since this MAC was reset or a token was received.

Ring Optional Count
Displays the count of the number of times the ring has entered the "Ring_Operational" state from the "Ring_Not_Operational" state. This count is updated when a change in the "Ring_Operational" status occurs. Because of implementation considerations, this count may be less than the actual "RingOp_Ct". It is not a requirement that this count be exact.

Frame Count
Displays a count of the number of frames received by this MAC.

Transmit Count
Displays a count that should as closely as possible match the number of frames transmitted by this MAC. This count does not include MAC frames.

Error Count
Displays a count of the number of frames that were detected in error by this MAC that had not been detected in error by another MAC.

Lost Count
Displays a count of the number of instances that this MAC detected a format error during frame reception such that the frame was stripped.

Frames Copied
Indicates the number of frames addressed to this MAC and which were copied into its receiving buffers.

Frames Not Copied
Displays a count that should as closely as possible match the number of frames that were addressed to this MAC but were not copied into its receive buffers. For example, this might occur due to local buffer congestion. Because of implementation considerations, this count may not match the actual number of frames not copied. It is not a requirement that this count be exact. This count does not include MAC frames.

Frames Not Copied Ratio
This variable is the value of the ratio:

NonRestrictTokens
Displays the number of non-restricted tokens sent by the MAC.

SMT Frames
Displays the number of SMT frames sent and received by the MAC.

LLC Frames
Displays the number of LLC frames sent and received by the MAC.

Beacon Count
Displays the number of beacons received by the MAC.

FDDI MAC Performance View

To access this view, do the following:

1. Highlight the MAC icon on the FDDI NMM logical module.

2. Select **MAC Performance** from the Icon Subviews menu.

The view displays the following information:

Ring Utilization
Displays the ring utilization calculated using the MAC token count and ring latency on that path.

Error Ratio
This variable is the value of the ratio.

Frame Rate
Displays a count of the number of frames received by this MAC. The number of frames is divided by the delta polling time to calculate the Frame Rate.

Error Rate
Displays a count of the number of frames that were detected in error by this MAC which were not detected in error by another MAC. The number of frames is divided by the delta polling time to calculate the rate.

Ring Status
Indicates the current state of the RMT State Machine.

FDDI MAC Stations View

To access this view, do the following:

1. Highlight the MAC icon on the FDDI NMM logical module.

2. Select **MAC Stations** from the Icon Subviews menu.

The view displays the following information:

Ring
Displays whether the node is on the Primary, Secondary, or Local ring.

MAC Address
Displays the MAC address of the node associated with this entry.

Station ID
Displays the station ID of the node associated with this entry.

Node Class
Displays the type of node, either "Station" or "Concentrator".

MAC Count
Contains the number of MACs in this node.

Non-Master Ports
Contains the number of non master ports (A,B, or S ports) in the node.

Master Ports
Contains the number of master (M ports) in the node.

Chapter 3

Chassis Management Views

What Is in This Chapter

This chapter provides descriptions of the chassis management views available to manage the SynOptics Series 5000 hub. These views allow you to access chassis configuration, component, and model information, for the SynOptics Series 5000 hub. The following chassis management views are available for the SynOptics Series 5000 Chassis.

- Chassis Modeling Information view
- Chassis Configuration view
- Chassis Group view

NOTE	*Be familiar with the device before using the chassis management views to configure and manage.*

Chassis Modeling Information View

The Chassis Modeling Information view contains information on the configuration of the NMM Agents and Community Names for the SynOptics Series 5000 hub model. This view is the only place to update or add community names for the NMM Agents in the chassis once the chassis model has been created.

To access the Chassis Modeling information view, do the following:

1. Within the Location view, highlight the Device icon.

2. From the Icon Subviews menu, select **Chassis Modeling Information**.

NMM Agents
This table displays the NMM agents loaded in the chassis, providing information on each agent's module, interface, and network address. This table also has three buttons, allowing you to sort the table by a statistic type, search the table for a certain value, or update the information contained in the table. To sort the table based on the values in a selected column, click a column heading to select the value type to sort the table by, then click **Sort** to initiate the process. To update the information contained in the table, click **Update**.

Community Names
This area of the Modeling Information view displays a list of the community names currently entered as valid names associated with the NMM agents in the chassis. NMM agents with community names other than those contained in this window are undiscoverable by the chassis. If the community name of an agent is changed, or a new agent with a new community name is added, enter the new name in Community Names area, as follows:

1. Enter the community names for the other active NMM Agents in the chassis into the Community Names window in this view. Be sure to add a **<return>** after every entry.

2. Single-click the Reconfigure Chassis Agents button. A pop-up dialog box appears, indicating the success of the action. Click **OK**.

3. Exit this view.

NMM Agent Models
Displays a list of the NMM agent models currently entered in the SPECTRUM database, and associated with this chassis model. This area provides the name, slot number, and community name for each NMM agent model displayed.

Contact Source Information
Displays the number of contact sources (entities in the chassis that have an IP address and community name through which the chassis can be managed and gather statistical information), the number of contact sources that have been lost, and the contact status color of the chassis. The greater the number of contact sources, the more flexibility in managing the chassis. Table 3-1 provides definitions of the contact status colors.

Reconfigure Chassis Models

Reconfigures the models associated with this chassis. During reconfiguration, SPECTRUM rediscovers the chassis models and their attributes.

Reconfigure Chassis Agents

Reconfigures the NMM agents associated with this chassis. During reconfiguration, SPECTRUM rediscovers the NMM agent models using the provided community names.

Reconfigure Repeater Models

Reconfigures the repeater models associated with this chassis. During reconfiguration, SPECTRUM rediscovers the repeater models and their attributes.

Chassis Configuration View

The Chassis Configuration view contains more detailed network configuration information for the SynOptics Series 5000 chassis. It provides configuration information on the device model in the VNM database and the device's firmware configuration. The values of some fields in this view can be modified.

To access this view, do the following:

1. Highlight the Device icon.

2. Select **Chassis Configuration** from the Icon Subviews menu.

or:

1. Highlight the Device icon highlight the Syn5CommonApp icon in the Application view.

2. Select **Chassis Configuration** from the Icon Subviews menu.

This view provides the following information:

Chassis Version
Displays the current version of the chassis.

Chassis Serial Number
Displays the serial number of the chassis. A value of zero indicates the serial number is unknown or unavailable.

Chassis Type
Displays a textual description of the chassis type.

Chassis Contact
Displays and allows you to enter or modify the contact information for the person responsible for the chassis.

Chassis Description
Displays a textual description of the chassis.

Chassis Location
Displays and allows you to enter or modify a textual description of the physical location of the chassis (e.g., fourth floor wiring closet).

Total Physical Changes
Displays the total number of physical changes (i.e., an addition or removal of a component or sub-component) that have been detected in the chassis since the start of the agent.

Last Physical Change
Displays the value of the sysUpTime variable when the last physical change (i.e., addition or removal of a module) was detected in the chassis.

Total Attachment Changes
Displays the total number of attachment changes across all modules in the chassis that have been detected since start of the agent.

Last Attachment Change
Displays the value of the sysUpTime variable when the last attachment change on any module in the chassis was detected.

Total Configuration Changes
Displays the total number of configuration changes (other than attachment changes or physical additions or removals) across all modules in the chassis that have been detected since start of the agent.

Last Configuration Change
Displays the value of the sysUpTime variable when the last configuration change (other than attachment changes or physical additions or removals) on any module in the chassis was detected.

Agent Interface

Accesses the Agent Interface view, described later in this chapter.

Agent Interface View

This view contains the Agent IF Table, which provides information about each interface for each agent in the chassis. The number of entries in the table is determined by the number of agents in the chassis and their configuration.

Access this view by clicking the Agent Interface button in the Chassis Configuration view.

The Agent IF Table provides the following information:

Component Index
Displays the index identifying the slot of the module containing the agent.

Interface Index
Displays the index of the interface.

IP Address
Displays the IP address of the interface. A value of 0.0.0.0. indicates the IP address is unknown or unused.

Chassis Group View

The Chassis Group view displays the Chassis Group Table, which contains information about each chassis level component and sub-component. Double-clicking a table entry accesses the Chassis Group Components view for the selected group type. The Chassis Group Components view is described later in this section.

To access this view , do the following:

1. Highlight the Device icon.

2. Select **Chassis Group** from the Icon Subviews menu.

or:

1. Highlighting the Syn5CommonApp icon in the Application view.

2. Select **Chassis Group** from the Icon Subviews menu.

This table provides the following information:

Index
Displays the index of each group in the chassis, identifying each group type with a number.

Description
Displays a textual description of each group in the chassis.

Max Comps
Displays the maximum number of components that each group type can contain within the chassis.

Num Comps
Displays the total number of components belonging to each group type currently installed in the chassis.

Phys Changes
Displays the total number of physical changes that have taken place to components within each group type.

Last Change
Displays the value of SysUpTime when the last physical change in each chassis group was detected. If none have been detected for a chassis group since cold/warm start of the agent, the value is zero.

Chassis Group Components view

The Chassis Group Components view allows observation of information on each component within the selected chassis group. Double-click a chassis group table entry to access the Component Store view , which is described later in this chapter. This view provides the following information:

Group
Displays the type of chassis group to which the components in this view belong.

Index
Displays the index of the component in the group. For example, for modules in the board group, this index indicates the slot number in the chassis.

Sub Index
Displays the index of the sub-component. If this entry is a component, not a sub-component, the value is zero.

Description
Displays a textual description of each component in the selected chassis group type.

Admin State
Displays the desired state of the component. Values can be read-only or read-write. The values that are read-only include Other (currently in some other state) or notAvail (actual value is not available). Table 3-1 provides descriptions of the read-write values.

Table 3-1.   **Admin State Values**

Value	Description
Disable	Disable operation.
Enable	Enable operation.
Reset	Reset component.
Test	Start self test of component with the result to be normal, warning, nonFatalErr or fatalErr.

Oper State
Displays the current operational state of the component. Table 3-2 provides descriptions of the possible values.

Table 3-2. **Oper State Values**

Values	Descriptions
Other	Some other state.
NotAvail	State not available.
Removed	Component removed.
Disabled	Operation disabled.
Normal	Normal operation.
Testing	Doing a self test.
Warning	Operating at warning level.
NonFatalErr	Operating at error level.
FatalErr	Error stopped operation.
Reset InProg	Reset in progress.

Last Change
Displays the value of SysUpTime when SPECTRUM detected that the component was last changed. A value of zero indicates that SPECTRUM has not detected a change since the start of the agent.

Component Store view

This view provides more detailed information on the selected component from the Chassis Group Components view.

Access this view by double-clicking an entry in the Chassis Group Components view.

The Component Store view provides the following information:

Description
Displays a textual description of the selected component from the Chassis Group Components view.

Version
Displays the version identifier of the component.

Serial Number
Displays the serial number of the component.

Last Change
Displays the value of SysUpTime when SPECTRUM detected that the component was added to the chassis. A value of zero indicates that

SPECTRUM has not detected a change since the start of the agent.

Administration State
Allows modification of the desired state of the component. Table 3-1 defines the possible Administrative State values.

Max Sub-Components
Displays the potential number of sub-components that can be attached to this component. A value of -1 indicates that no component information is available. If this entry is itself a sub-component then this field displays a value of zero, as though there were no sub-components attached.

Operational State
Displays the current operational state of the component. Table 3-2 defines the possible Operational State values.

Num Sub-Components
Displays the actual number of sub-components currently attached to this component. A value of -1 indicates that no component information is available. If this entry is itself a sub-component then this field displays a value of zero, as though there were no sub-components attached.

Component Store Table
Provides a list of the storage areas available on each component. Only components in the chassis that have manageable storage areas are displayed in this list. Examples of storage areas include RAM (main memory), FLASH, ROM, and EEPROM. Disk drives are not considered manageable storage areas. Table 3-3 describes the information provided in this table.

Table 3-3. **Component Store Table Fields**

Field	Description
Storage	The index of the storage area on the component.
Storage Type	The storage area type on the containing component.
Current Size (bytes)	The current size of the storage area in bytes. A value of zero means the storage area is not installed or not usable. A value of -1 indicates that the size is unknown or unavailable.
Content Version	The version of the contents (i.e., the code or data) of the storage area.

Chapter 4

NMM Management Views

What Is in This Chapter

This chapter provides descriptions of the NMM (Network Management Module) management views that are available to manage the SynOptics Series 5000 hub. Be familiar with the device before using the NMM management views to configure and manage. The NMM management views provide information on the Network Management Module's configuration, traps, nodes, and topology.

The NMM Agent Configuration and NMM Trap Receiver views are common to all Ethernet, Token Ring, and FDDI NMMs. Token Ring and FDDI NMM-specific views are discussed separately.

Accessing the NMM Management Views

There are two methods of accessing the NMM management views.

1. Highlight the NMM module in the Logical or Physical Device view and select the desired view from the Icon Subviews menu.

2. Highlight the SynOptics Series 5000 device icon and select **NMM Agent View** from the Icon Subviews menu. In the NMM Agent view, highlight the Ethernet, Token Ring, or FDDI NMM Agent icon and select the appropriate Icon Subviews menu selection.

NMM Agent Configuration View

The NMM Agent Configuration view displays and provides detailed information on the configuration of the agent, including the initial boot information.

To access this view, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Agent Configuration** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Agent Configuration** from the Icon Subviews menu.

This view provides the following information:

RAM Version
Displays the version of the agent. This is an alias for the RAM of the module containing the agent.

Initial Boot Info Source
Displays the source for initial protocol configuration information at next boot. For IP, a setting of "net using bootp" means that BOOTP will be used to get the agent's IP address(es), load server address, and configuration file name.

For IPX, a setting of "net using bootp" means SAP will be used to get the agent's Novell network number(s), and the configuration filename will be loaded from local storage.

Table 4-1 lists values which are valid entries, and descriptions of each value.

Table 4-1. **Initial Boot Info Source Entries**

Value	Description
local	Do not use the network.
net using bootp	Try using the network, and if that fails then use protocol configuration information from local storage.
other	Not applicable, or some other case.

The load server address is not configurable and is not available in this MIB object on a Novell network.

Local Storage Version
Displays the version of the agent saved in local storage (such as flash memory) in the form "*major.minor.maintenance*." If not known or not available, then the value is a zero length string.

Configuration Load Source
Displays the source from which to load configuration information at the next boot. Table 4-2 lists values which are valid entries, and descriptions of each value.

Table 4-2.   **Configuration Load Source Values**

Value	Description
local only	get from local storage
net only	load from the network
net with local backup	try using network and if it fails then use local information
other	not applicable or some other case

When "local only" is specified, the configuration information is loaded from local storage. If the local configuration is not valid, then BOOTP is used for the IP stack.

In IPX only mode, the IP address could be 0.0.0.0; IPX does not rely on the IP address. The agent checks the IPX address, and if the network number of the IPX address is equal to 0 the agent uses SAP.

When "net only" is specified, the configuration information will be downloaded from the network only. The configuration information will never be loaded from local storage, even if downloading fails and the local configuration information exists.

When "net with local backup" is specified, a download of the configuration information will be tried over the network. If the network download fails, then the configuration information will be loaded from local storage.

Current Gateway
Displays the IP address of the current default gateway (router). If not used, then this object has the value of 0.0.0.0.

Current Protocol
Displays the transport protocol over which the agent image and configuration information were last loaded. Table 4-4 lists status values which are valid entries, and descriptions of each value.

Table 4-3.   **Current Protocol Status Values**

Value	Description
ip	gotten from the network using a load protocol over IP
other reserved	unknown or some other protocol

Next Boot Gateway
Displays the IP address of the default gateway (router) for the agent to use after the next boot. If not used, then this object has the value of 0.0.0.0.

Next Boot Protocol
Displays the transport protocol(s) which the agent is to use to load the configuration information and the agent image at the next boot of the agent. Table 4-4 lists values which are valid entries, and descriptions of each value.

Table 4-4. **Next Boot Protocol Values**

Value	Description
ipOnly	use load protocol over IP
other	unknown or some other protocol

Last Boot Image Save Status
Indicates what happened to the image file on the last boot. Table 4-5 lists values which are valid entries, and descriptions of each value.

Table 4-5. **Last Boot Image Save Status Values**

Value	Description
notAvail	the save operation is not available
noSave	image not saved since image was not asked to be saved, or image was not loaded from the network
saved	image saved
saveFailed	tried to save image, but failed

Next Boot Image Load Source
Displays the source from which to load the agent image at next boot. Table 4-6 lists values which are valid entries, and descriptions of each value.

Table 4-6. **Next Boot Image Load Source Values**

Value	Description
local only	get from local storage
net only	load from the network
net with local backup	load from the network and if that fails, use local information
net if newer	try loading the image over the net
other	not applicable or some other case

Use the Next Boot Image if it can be loaded, and it is newer than the local image. Otherwise, use local image.

If the local image is not valid, the setting will be "net only" and cannot be changed to "local only" or "net with local backup" until a valid image file is loaded. When the local image is not valid and the network download of the image fails, the entire boot process will be repeated.

When "local only" is specified, the image will be loaded from local storage.

When "net only" is specified, the image will be downloaded from the network only. The image file will never be loaded from local storage, even if downloading fails and the local image exists.

When "net with local backup" is specified, a download of the image is tried over the network. If the network download fails, then the image is loaded from local storage.

When "net if newer" is specified, a download of the image will be tried over the network. If successful, it will then be compared to the image stored in local storage. The most recent version of the two will be used. If the local image is not valid, the network will always be used. If the network download fails then the image is loaded from the local storage.

Next Boot Image Save Mode
Indicates what will be done with the image (when loaded from the network) on the next boot. Table 4-7 lists values which are valid entries, and descriptions of each value.

Table 4-7.   **Next Boot Image Save Mode Values**

Value	Description
not available	the save operation is not available
write if different	save image to local storage at the next boot if the image is different from saved contents
write if newer	save image to local storage at the next boot if the image is newer than saved contents
no write	do not save image to local storage at the next boot, even if the image is newer or different

Write Configuration Settings to NVRAM
Provides a button that allows you to write the current configuration settings to local non-volatile random access memory (NVRAM). Table 4-8 lists values which are valid entries, and descriptions of each value.

Table 4-8.   **Write Configuration Settings to NVRAM**

Value	Description
valid	contents valid
write	write configuration settings to local storage
other	some unknown or other state

Reboot Agent
Provides a button allowing you to reboot the agent. Table 4-9 lists values which are valid entries, and descriptions of each value.

Table 4-9.   **Reboot Agent Values**

Value	Description
other	agent in unknown or other state
running	agent running
restart	restart agent (i.e., jump to beginning of agent code)
reboot	start boot sequence for agent (i.e., jump to beginning of boot firmware
reset	do a hardware reset

NMM Trap Receiver View

The NMM Trap Receiver view provides information and addresses for devices receiving traps. The maximum and current number of trap receivers are displayed with the Trap Receiver Table.

To access this view, do the following:

1. Highlight an NMM module in the Device view.

2. Select **NMM Trap Receiver** from the Icon Subviews menu.

or:

1. Highlight an NMM Agent icon in the NMM Agent view.

This view provides the following information:

Maximum Entries
Displays the maximum number of rows allowed in the trap receiver table.

Current Entries
Displays the current number of rows in the trap receiver table.

Next Available Entry
Displays the number identifying the next available row to be created in the trap receiver table. A value of zero indicates that the table is full and no more rows may be added.

Add Receiver

Allows addition of a receiver to the table by accessing the Add Trap Receiver view. The Add Trap Receiver view has the same fields as the Trap Receiver Table, but allows addition of information for the new entry. When adding a new trap receiver, the value displayed in the Next Entry Index field must be entered into the Use Entry Index field.

Trap Receiver Table

This table lists information about trap receivers. It also lists the addresses of trap receivers.It is possible to sort, update, and search the table. To activate the **Sort** button, click a column heading. Click the **Sort** button to sort the table based on the selected column. To activate the **Find** button, click the Network Address or Community String column heading. Enter the search string at the prompt. Double-clicking an entry in this table opens the Trap Receiver Entry View, which allows modification of values for the selected trap receiver.

This table provides the following information:

Receiver
Displays the number identifying the row in the table.

Receiver Status
Displays the status of the row in the Trap Receiver Table. In the Add Trap Receiver and Trap Receiver Entry views, this field corresponds to the Status button, which allows creation or deletion entries for the table. Table 4-10 lists values which are valid entries, and descriptions of each value.

Table 4-10. **Receiver Status**

Value	Description
Valid	Read-only status indicating the row exists and is valid.
Delete	Writeable value that deletes the row (Trap Receiver Entry view only).
Create	Writeable value that creates a new row (Add Trap Receiver view only).
Other	Read-only status indicating the row is unknown, or some other case exists.

Address Type
Displays the type of network address for the agent's trap receiver (i.e., IP).

Network Address
Displays the network address (in entry order) of the SNMP manager that will receive the traps. In the Add Trap Receiver and Trap Receiver Entry views, this field corresponds to the Net Address field. Enter the network address of the new trap receiver or modify the existing address in the Net Address field.

Community String
Displays the community string to use for the trap receiver. In the Add Trap Receiver and Trap Receiver Entry views, this field corresponds to the Community Name field. Enter the assigned community name to be used for the new trap receiver or modify the existing community name in the Community Name field.

Age Time
Displays the time interval used to age entries out of the trap receiver table. The default value, if not specified, is zero. A zero value indicates an infinite timeout, where entries will never be aged out. Modify this value in the Add Trap Receiver and Trap Receiver Entry views.

Token Ring NMM Management Views

This section provides descriptions of the Token Ring NMM-specific views. The following views are described:

- TR NMM Show Nodes Table
- TR NMM Find Nodes Table
- Token Ring NMM Topology Table
- Token Ring NMM ring Topology Table

TR NMM Show Nodes Table

The TR NMM Show Nodes Table provides a list of all the active MAC addresses that the NMM currently recognizes on all rings, and also all active MAC addresses recognized by each DCE on the module. It is possible to sort, update, and search the table. To activate the **Sort** button, click a column heading. Click the **Sort** button to sort the table based on the selected column. To activate the **Find** button, click the Address or Vendor column headings. Enter the search string at the prompt.

To access this table, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Show Nodes** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Show Nodes** from the Icon Subviews menu.

This view provides the following information:

Interface
Displays the number identifying the source that detected the active node. Values greater than zero represent the index of the agent's interface in the NMM. A value of zero indicates that the agent detected the node information through the best available method.

Module
Displays the number identifying the position of this module in the chassis.

Port
Displays the number identifying the position of this port on the module.

Mac Address
Displays the physical (MAC) address for the station.

Vendor
Displays the manufacturer of the device connected to that port. This is determined from the MAC address.

Status
Displays the operational status of the MAC address for the station. Table 4-11 lists status values which are valid entries, and descriptions of each value.

Table 4-11.   **Operational Status of MAC Address**

Value	Description
Active (2)	Read-only status indicating the station has sent a frame within the required time period, or for Token Ring or FDDI, that the station is in the ring poll.
Inactive (3)	Read-only status indicating the station is idle, having sent no frames within the required time period.
Other (1)	Read-only status indicating the address is unknown or in some other state.

TR NMM Find Nodes Table

The TR NMM Find Nodes Table provides a list of all the active MAC addresses that the NMM currently recognizes on all segments, and also all active MAC addresses recognized by each DCE on the module. It is possible to sort, update, and search the table. To activate the **Sort** button, click a column heading. Click the **Sort** button to sort the table based on the selected column.

To activate the **Find** button click the Mac Address or Vendor column heading. Enter the search string at the prompt.

To access this table, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Find Nodes** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Find Nodes** from the Icon Subviews menu.

The TR NMM Find Nodes Table provides the following information:

Interface
Displays the number identifying the source that detected the active node. Values greater than zero represent the index of the agent's interface in the NMM. A value of zero indicates that the agent detected the node information through the best available method.

MAC Address
Displays the physical (MAC) address of the station.

Vendor
Displays the manufacturer of the device connected to that port. This is determined from the MAC address.

Module
Displays the number identifying the position of this module in the chassis.

Port
Displays the number identifying the position of this port on the module.

Token Ring NMM Topology Table View

The Token Ring NMM Topology Table view provides a table of topology information from each NMM with a token ring interface on the same flat network as the reporting NMM. The number of entries is determined by the number of detected and active NMMs. Entries in the table are created by reception of a topology message from a "new" NMM. An entry is automatically removed from the table after no messages are received from the NMM in the required time interval. It is possible to sort, update, and search the table. To activate the **Sort** button, click on a column heading. Click the **Sort** button to sort the table based on the selected column. To activate the **Find** button, click the MAC Address column heading. Enter the search string at the prompt.

To a ccess this table, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Topology** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Topology** from the Icon Subviews menu.

The Token Ring NMM Topology Table view provides the following information:

Interface Address
Displays the IP address of the interface on which the topology message was received.

IP Address
Displays the IP address of an NMM contained in a topology message.

Ring Number
Displays the number identifying the ring on which an NMM from a topology message is located.

Ring Master
Displays the classification of an NMM from a topology message. Possible values are: Normal (not a master NMM) and Master (a master NMM).

Ring Speed
Displays the speed of the ring (in units of Mbits) on which an NMM from a topology message is located. Possible values are: 4 Mbps and 16 Mbps.

Token Ring NMM Ring Topology Table View

The Token Ring NMM Ring Topology Table view provides a listing of all the NMMs with a token ring interface on the same ring as the reporting NMM. The number of entries is determined by the number of detected and active NMMs. Entries in the table are created by reception of a topology message from a "new" NMM. An entry is automatically removed from the table after no messages are received from the NMM in the required time interval. It is possible to sort, update, and search the table. To activate the **Sort** button, click a column heading. Click the **Sort** button to sort the table based on the selected column. To activate the **Find** button click the MAC Address column heading. Enter the search string at the prompt.

To access this table, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Ring Topology** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Ring Topology** from the Icon Subviews menu.

The Token Ring NMM Ring Topology Table view provides the following information:

Interface Address
Displays the IP address of the interface on which the topology message was received.

IP Address
Displays the IP address of the NMM that sent the topology message.

MAC Address
Displays the MAC address of the NMM that sent the topology message.

Chassis Type
Displays the type of chassis containing the NMM that sent the topology message.

Backplane Type
Displays the type of backplane in the chassis containing the NMM that sent the topology message.

Slot
Displays the number identifying the slot containing the NMM that sent the topology message.

UNA
Displays the IP Address of the next upstream NMM of the NMM that sent the topology message.

FDDI NMM Management Views

This section provides descriptions of the FDDI NMM-specific views. The following views are described:

- Agent Download view
- FDDI Show Nodes Table
- FDDI Find Nodes Table
- Paths Table
- Ring Status view
- Worst Error Table
- Station Status Report (SRF) Event Counters view
- Station Status Report (SRF) Condition view
- Ring Topology view
- Physical Topology Trunk view
- Physical Topology Node view
- Optical Bypass Switch Table

Agent Download View

To access this view, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Agent Download** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Agent Download** from the Icon Subviews menu.

The Agent Download view provides the following information:

Next Boot IP Addr
Displays the IP address of the interface that will be used for the next boot. If no IP address is used, then the value is 0.0.0.0. The current IP address for the interface is found in the IP Address Table.

Next Boot Net Mask
Displays the subnet mask for the interface that will be used for the next boot. If no subnet mask is used, then the value is 0.0.0.0. The current subnet mask for the interface is found in the IP Address Table.

Load Server Addr
Displays the IP address of the load server for the configuration file and/or the image file. If the IP address is not used, then the value is 0.0.0.0"

Valid Flag
Indicates if the configuration and/or image file(s) were downloaded from this interface and if the file names have not been changed. Table 4-12 lists valid status values and their descriptions.

Table 4-12. **Valid Flag Status Values**

Value	Description
valid	Configuration and/or image file(s) downloaded from this interface are currently in use.
invalid	Configuration and/or image files downloaded from this interface are not in use (this may also mean that there are no files downloaded from this interface).

Config File Name
Displays the name of the configuration file currently associated with the interface. When not used, the value is a zero length string.

Image File Name
Displays the name of the image file(s) currently associated with the interface. Some agents in special situations may support a value which contains

multiple file names instead of a single file name. Multiple names are specified as a list of file names separated by semicolons (;). When this object is not used, the value is a zero length string.

Write Configuration Settings to NVRAM
Provides a button that allows you to write the configuration settings to non-volatile random access memory (NVRAM). This causes the current configuration settings to be written to local non-volatile storage. Table 4-13 lists status values which are valid entries, and descriptions of each value.

Table 4-13.   **FDDI Write Configuration Settings to NVRAM Status Values**

Value	Description
valid	contents valid
write	write configuration settings to local storage (such as NVRAM)
other	some unknown or other state

FDDI Show Nodes Table

This table lists the active nodes connected through the concentrator. It is possible to sort, update, and search the table.

To access this table, do the following:

1. Highlight the NMM module in the Device view.

2. Selecting **NMM Nodes** -> **Show Nodes** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Selecting **NMM Nodes** -> **Show Nodes** from the Icon Subviews menu.

The Show Nodes Table view provides the following information:

Slot
Displays the board number the node is on.

Port
Displays the port number the node is on.

MAC Address
Displays the physical (MAC) address of the node.

Station ID
Displays the unique FDDI station identifier associated with this entry.

MAC Count
Displays the number of MACs in this station or concentrator.

Master Ports
Displays the number of master ports (M ports) in the node.

Non-Master Ports
Displays the number of non master ports (A,B, or S ports).

Type
Displays the Station Type of Node, either station (node with no M ports), or concentrator (node with M ports).

FDDI Find Nodes Table

This table contains a list of all of the active nodes that are currently connected to the network through this concentrator. It is possible to sort, update, and search the table. The Show Nodes and Find Nodes tables differ in their indexing.

To access this table, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Nodes** -> **Find Nodes** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Nodes** -> **Find Nodes** from the Icon Subviews menu.

The FDDI Find Nodes Table view provides the following information:

MAC Address
Displays the physical (MAC) address of the node of this entry.

Slot
Displays the slot number of the board with which the node is associated.

Port
Displays the port to which the node is connected.

Paths Table

Access the Paths Table view by highlighting the NMM module in the Device view or by highlighting the NMM Agent icon in the NMM Agent view and selecting the **NMM Paths** from the Icon Subviews menu. It is possible to sort,

update, and search the table. Double-click an entry to open the Path Parameters view.

Path Parameters

Opens the Path Parameters view. The Path Parameters view provides the following information:

SMT Index
Displays the value of the SMT index associated with this PATH.

Path Index
Displays the index variable for uniquely identifying the primary, secondary and local PATH object instances. Local PATH object instances are represented with integer values from 3 to 255."

TVX Lower Bound
Specifies the minimum time used by any MAC that is configured in this path.

TMax Lower Bound
Specifies the minimum time used by any MAC that is configured in this path.

Max Time Required
Specifies the maximum time used by any MAC that is configured in this path.

SBA Available
Displays the maximum Synchronous Bandwidth Allocation available for a path in bytes per second.

SBA Payload
Displays the payload portion of the Synchronous Bandwidth Allocation for this path. This value represents the maximum number of bytes of data allocated for transmission per 125 microseconds.

SBA Overhead
Displays the overhead portion of the Synchronous Bandwidth Allocation for this path. This value represents the maximum number of bytes of overhead (token capture, frame header, etc.) used per negotiated Target Token Rotation Time (T_Neg).

Ring Latency
Gives the total accumulated latency of the ring associated with this path. May be measured directly by the station or may be calculated by a management station.

Trace Status
Indicates the current trace status of the path.

Path Configuration

Opens the Path Configuration view. The Path Configuration view provides the following information:

SMT Index
Displays the value of the SMT index associated with this configuration entry.

Path Index
Displays the value of the path resource index associated with their configuration entry.

Token Order
Displays an object associated with the token order for this entry. If the token passes resources a, b, c, and d, in that order, then the value of this object for those resources would be 1, 2 ,3 , and 4, respectively.

Resource Type
Displays the type of resource associated with this configuration entry.

Resource Index
Displays the value of the SMT resource index used to refger to this MAC or port resource.

Current Path
Displays the current insertion status for this resource on this path. Possible statuses are; isolated, local, secondary, primary, concatenated, or thru.

Ring Status View

Access the Ring Status view by highlighting the NMM module in the Device view or by highlighting the NMM Agent icon in the NMM Agent view and selecting the **NMM Ring Table** from the Icon Subviews menu. It is possible to sort, update, and search the table. The following information is provided:

Ring
Displays a unique number to identify the ring.

Utilization
Displays the ring utilization calculated using the MAC token count and ring latency on that path.

Wrap State
Indicates if the ring is wrapped.

State Duration
Indicates how long the ring has been in the above condition (wrapped or unwrapped).

Worst Error Table View

This table provides LAN statistics information for the whole LAN. It provides information about each station's worst error rates on MACs and ports. It is indexed by station. It is possible to sort, update, and search the table. When the table is first accessed, set the Worst Error Monitor Operational State to **On** and then click **Update** to see any statistics.

To access this view, do the following:

1. Highlight the NMM module in the Device view.

2. Select the **NMM Station** -> **Station Worst Errors** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select the **NMM Station** -> **Station Worst Errors** from the Icon Subviews menu.

The Worst Error Table provides the following information:

Station ID
Station ID (in hex) of the station with worst LER errors and Frame Errors.

Port w/LER
The port on this station with the worst rate of LER errors.

LER Estimate
The worst LER estimate (long term average link error rate) on the above port.

MAC w/ Worst Frame Error Rate
The Mac on this station with the worst rate of frame errors.

MAC Ratio
The worst ratio of frame errors on the above MAC. The formula is:

$$\frac{\text{Delta of Lost Ct} + \text{Delta of Error Ct}}{\text{Delta of Frame Ct} + \text{Delta of Lost Ct}} \times 2^{16}$$

This value will be between 0 and 65535.

Station Status Report (SRF) Event Counters View

This view provides LAN statistics information for the whole LAN. It provides information about each station's conditions and events on MAC's and port's. It is indexed by station. It is possible to sort, update, and search the table. When the table is first accessed, set the SRF Monitor Operational State to **On** and then click **Update** to see any statistics.

To access this view, do the following:

1. Highlight the NMM module in the Device view.

2. Select **NMM Station** -> **Station SRF Event Counters** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Select **NMM Station** -> **Station SRF Event Counters** from the Icon Subviews menu.

The SRF Monitor Table provides the following information:

Station ID
Displays the Station ID of the station with the indicated conditions and events.

MAC Neighbor Changes
Indicates the number of times this station sees a MAC neighbor change.

MAC Path Changes
Indicates the number of times this station sees a Path change on one of its MAC's.

Port Undesired Connects
Indicates the number of times an undesired connection is attempted on this port.

Port Path Changes
Indicates the number of times this port changes path.

Station Status Report (SRF) Condition View

This view provides LAN statistics information for the whole LAN. It provides information about each station's conditions and events on MAC's and port's. It is indexed by station. When the table is first accessed, set the SRF Monitor Operational State to **On** and then click **Update** to see any statistics.

To access this view, do the following:

1. Highlight the NMM module in the Device view.

2. Selecting **NMM Station** -> **Station SRF Condition** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Selecting **NMM Station** -> **Station SRF Condition** from the Icon Subviews menu.

This view provides the following information for a single entry in the SRF Monitor Table:

Station ID
Displays the Station ID (in hex) of the station with the indicated conditions and events.

Peer Wrap State
Indicates if an SMT peer wrap condition has occurred.

MAC Dup Address
Indicates if a MAC address condition has been detected.

MAC Frame Err
Indicates if a MAC frame error condition has occurred.

MAC Not Copied
Indicates if a MAC not copied condition has occurred.

Port LER
Indicates if a Port Link Error condition has occurred.

Port EBE
Indicates if a port elastic buffer error condition has occurred.

Ring Topology view

This view is a table of the NMMs in a logical ring presented by the Network Manager as a flat network of NMM's. It is possible to sort, update, and search the table.

To access this view, do the following:

1. Highlight the NMM module in the Device view.

2. Selecting **NMM Topology** -> **Ring Topology** from the Icon Subviews menu.

or:

1. Highlight the NMM Agent icon in the NMM Agent view.

2. Selecting **NMM Topology** -> **Ring Topology** from the Icon Subviews menu.

The NMM Table provides the following information:

Interface IP
Displays the IP address of the interface. This refers to the interface of the polling NMM.

Network #
Displays the flat network number of which the NMM is a part.

IP Address
Displays the IP address of this NMM entry. This refers to the NMM being polled.

Chassis Type
Indicates the chassis type that contains the NMM.

MAC Address
Displays the MAC address of this entry.

Backplane Type
Indicates the backplane type into which the NMM is inserted.

Upstream Neighbor
Displays the canonical or MAC address of the last node to receive the token before this node.

Physical Topology Trunk View

Access the Physical Topology Trunk view by highlighting the NMM module in the Device view or by highlighting the NMM Agent icon in the NMM Agent view and selecting **NMM Topology** -> **Physical Topology Trunk** from the Icon Subviews menu. When the view is first accessed, set the Physical Toplogy

Operational State to **On** and then click **Update** to see any statistics. This view provides the following information:

Station ID
Displays the station address (in hex) of the node associated with this entry.

IP Address
Displays the IP address of the node associated with this entry.

NMM Slot
Indicates the SynOptics slot number where the local NMM A/B/S port(s) reside(s).

Station State
Displays the state of the ring. Options are Through, Wrap_A, Wrap_B, Wrap_AB, or Wrap_S.

Station Type
Displays the Station Type of Node. Options are Station-with-no-M-port, Concentrator-with-no-child, or Concentrator-with-children.

Station Type Mask
Provides a series of read-only indicator buttons showing what Station Type Mask is being used. Options are DAS, SAS, DAC, SAC, or Root Node on trunk ring.

Slot
Displays the SynOptics slot number where the local NMM A/B/S port(s) reside(s).

Physical Topology Node View

Access the Physical Topology Node view by highlighting the NMM module in the Device view or by highlighting the NMM Agent icon in the NMM Agent view ands electing **NMM Topology** -> **Physical Topology Node** from the Icon Subviews menu. It is possible to sort, update, and search the table. When the view is first accessed, set the Physical Toplogy Operational State to **On** and then click **Update** to see any statistics.

The Physical Topology Node view provides the following information:

Station Address
Displays the station address (in hex) of the node associated with this entry.

IP Address
Displays the IP Address of the node associated with this entry.

Station Type Mask
Provides a series of read-only indicator buttons showing what Station Type Mask is being used. Options are DAS, SAS, DAC, SAC, or Root Node on trunk ring.

Num Parents
Displays the number of parent stations of this concentrator/station.

Num Children
Contains the number of parent stations of this child concentrator or station (a maximum of 100 ports for FDDI Phase II).

Optical Bypass Switch Table

Access the Optical Bypass Switch Table by highlighting the NMM module in the Device view or by highlighting the NMM Agent icon in the NMM Agent view and selecting the **NMM Optical Bypass Switch** from the Icon Subviews menu. It is possible to sort, update, and search the table for specific information. Double-click an item in any column to open the Optical Bypass Switch view, which provides the same information, and allows you to modify the Partition Status and Partition Timer.

The Optical Bypass Switch Table provides the following information:

SMT Index
Displays the value of the SMT index associated with this Attachment.

Optical Bypass Switch Index
Displays a unique value for each optical bypass switch.

Partition Status
Indicates the optical bypass switch partition status. Options are "on-partitioned" or "off-enabled".

Partition Timer
Displays the Optical Bypass Switch partition timer.

Bypass Present
Indicates if an optical bypass switch is inserted. Options are True or False.

Chapter 5

DCE Management Views

What Is in This Chapter

This chapter provides descriptions of the DCE management views that are available to manage the SynOptics Series 5000 hub. Be familiar with your device before using the DCE management views to configure and manage it.

Ethernet and Token Ring NMMs have Data Collection Engine (DCE) icons which represent network interfaces. DCEs are used to collect data and network statistics off of the hub backplanes.

The DCE Configuration and DCE Agent Configuration views are common to all Ethernet and Token Ring NMMs. Token Ring DCE-specific views are discussed separately. FDDI NMMs do not support DCE functionality.

Accessing the DCE Management Views

There are two methods of accessing the DCE management views.

1. Highlight the Ethernet or Token Ring DCE icon in the Logical Device view and select the appropriate Icon Subviews menu selection.

2. Highlight the Ethernet or Token Ring NMM module in the Logical or Physical Device view device icon and select **DCE View** from the Icon Subviews menu. In the DCE view, highlight the DCE icon and select the appropriate Icon Subviews menu selection.

DCE Configuration View

The DCE Configuration view provides information on the configuration of the DCE and allows modification of some values.

To access this view, do the following:

1. Highlight the DCE icon in the Device view.

2. Select **DCE Configuration** from the Icon Subviews menu.

or:

1. Highlight the DCE icon in the DCE view.

2. Select **DCE Configuration** from the Icon Subviews menu.

This view provides the following information:

Model Name
Displays the type and identity of the DCE in the following format:
DCE_1.1_5310 (where DCE describes the device, 1.1 indicates the position of the module in the hub and the number of the DCE on the module, and 5310 indicates the type of module containing the DCE).

Network Address
Displays the IP address of the DCE.

Module
Displays the number specifying the location of the module containing the DCE in the hub.

DCE
Displays the number uniquely identifying the DCE on the module.

Current Attachment
Provides a button displaying, and allowing you to change, the identifier (i.e., SEG-1 indicates Segment 1) indicating which segment the DCE is currently connected to. By changing this identifier, the DCE is changed to a different segment, or isolated from all segments.

Last Change
Displays the value of SysUpTime when the last attachment change on the DCE was detected. If none have been detected since cold/warm start of the agent, the value is zero.

DCE Agent Configuration View

The DCE Agent Configuration view provides information on the configuration of the DCE agent and allows modification of some values.

To access this view, do the following:

1. Highlight the DCE icon in the Device view.

2. Select **DCE Agent Configuration** from the Icon Subviews menu.

or:

1. Highlight the DCE icon in the DCE view.

2. Select **DCE Agent Configuration** from the Icon Subviews menu.

This view provides the following fields:

> **NOTE**
>
> *Each time one or more of the fields are changed, write the new changes out to the device by updating the view. Once the changes have been written out to the device, save these changes to Non-Volatile RAM (NVRAM) by setting the Write Configuration Settings to **NVRAM** and updating the view. Any changes made that are not saved to NVRAM will be lost when the NMM is reset.*

Next Boot IP Addr
Displays the IP address of the interface for the next boot. If not used, the value is 0.0.0.0.

Load Server Addr
Displays the IP address of the load server for the configuration and/or image file. If not used, the value is 0.0.0.0.

Config File Name
Displays the name of the configuration file currently associated with the interface. If not used, the value is a zero-length string.

Image File Name
Displays the name of the image file(s) currently associated with the interface. Some agents in special situations may support a value that contains multiple file names instead of a single file name. Multiple names are specified as a list of file names separated by semicolons. If the object is not used, the value is a zero-length string.

Next Boot Net Mask
Displays the subnet mask of the interface for the next boot. If not used, the value is 0.0.0.0.

Valid Flag
Indicates whether the configuration and/or image files were downloaded from this interface and if the file names have not been changed. Table 5-1 list the

possible values and descriptions of each value.

Table 5-1.   **Valid Flag Values**

Value	Description
valid	Configuration and/or image files downloaded from this interface are currently in use.
invalid	Configuration and/or image files downloaded from this interface are not in use. This may also indicate that no files have been downloaded from this interface.

Write Configuration Settings to NVRAM

Writes the current configuration settings to local Non-Volatile RAM. Table 5-2 lists status values which are valid entries, and describes each value.

Table 5-2.   **Write Configuration Settings to NVRAM**

Value	Description
other	Read-only status indicating some unknown or other state.
valid	Read-only status indicating the contents are valid.
write	Writeable value initiating the process of writing the current configuration settings to NVRAM.

Token Ring DCE Management Views

This section provides descriptions of the Token Ring DCE-specific views. The following views are described:

- Token Ring DCE Ring Information view
- Token Ring DCE Performance view
- Token Ring DCE Station Table

Token Ring DCE Ring Information View

The Token Ring DCE Ring Information view is divided into several sections providing statistical and configuration information related to the ring this DCE is monitoring. These sections include ring, beacon, active monitor, and station table information.

To access this view, do the following:

1. Highlight the DCE icon in the Device view.

2. Select **DCE Ring Information** from the Icon Subviews menu.

or:

1. Highlight the DCE icon in the DCE view.

2. Select **DCE Ring Information** from the Icon Subviews menu.

The Token Ring DCE Ring Information view provides the following information:

Source Index
Displays the index of the entry in the table. This index identifies the DCE that is the source of the information. Only those DCEs that provide these statistics are in this table.

DCE MAC Address
Displays the MAC address of the DCE providing this information. If no address is available, the value is equal to zero.

Time Monitored
Displays the length of time the ring has been monitored by the current DCE, in the following format: *Days+Hours:Minutes:Seconds*.

Ring

This area of the Token Ring DCE Ring Information view provides information on the ring being monitored by this DCE, including its state, beacons, and changes.

This section provides the following fields:

Ring Number
Displays the number identifying the ring being monitored by this DCE. Each ring in a multiple ring network is assigned a unique number. Together, a ring and bridge number form a route designator. The ring number is obtained by the NMM during the initialization process.

Ring State
Displays the current status of the ring. Table 5-3 provides definitions of the possible ring states.

Table 5-3. **Ring Status Definitions**

Ring Status	Definition
NormalOperation	The ring is operating without any interruptions.
RingPurge	The ring is in its purge state. The active monitor enters this state whenever a token error is detected.
MonitorContention	The ring is in the monitor contention state. The ring enters this state whenever the stations on the ring need to establish an active monitor.
BeaconFrameStreaming	The ring is in the beacon frame streaming state. The ring enters this state when a station participating in the monitor contention process, and has its monitor contention timeout expired, receives multiple claim tokens and cannot solve the contention within one second.
BeaconBitStreaming	The ring is in the beacon bit streaming state. The ring enters this state when a station participating in the monitor contention process, and has 'monitor timeout,' has not received any claim token.
BeaconRingSignalLoss	The ring is in the beacon ring signal loss state. The ring enters this state when a station participating in the monitor contention process, and has 'contention timeout,' detects a signal loss.
BeaconSetRecoveryMode	The ring is in the beacon set recovery mode. The ring enters this state when a station, before acting as a recovery station, sends out a beacon frame with a recovery mode bit set.

Ring Purges
Displays the total number of times that the ring has entered the ring purge state from the normal ring state. The ring purge state resulting from the ring leaving the monitor contention or beacon state is not counted.

NAUN Changes
Displays the total number of NAUN changes that have been measured on the

ring. This is determined by the number of Report SUA change MAC frames that have been detected.

Poll Events
Displays the total number of poll events that have been detected on this ring.

Beacons
Displays the number of beacons generated by stations, and detected by the DCE, on this ring.

Beacon Time
Displays the value total amount of time the ring has been in the beacon state. This beacon time is updated every time the ring enters the beacon state. The value is displayed in the following format: *Days+Hours:Minutes:Seconds*.

Last Beacon

This area of the Token Ring DCE Ring Information view provides information on the last beacons detected on this ring, including the sender, time, and type. This section provides the following fields:

Last Beacon Sender
Displays the MAC address of the sender of the last beacon frame detected on the ring. If no beacon frames have been detected, then the value is equal to six octets of zero.

Last Beacon Time
Displays the value of SysUpTime when the last beacon frame was detected on the ring. If one has not been detected, then the value is zero.

Last Beacon Type
Displays the type of the last beacon frame detected on the ring. Table 5-4 provides the possible beacon types and definitions.

Last Beacon NAUN
Displays the MAC address of the Next Active Upstream Neighbor (NAUN) in the last beacon frame detected on the ring. If no beacon frames have been detected, the value is equal to six octets of zero.

Table 5-4.   **Beacon Type Definitions**

Beacon Type	Definition
Other	No beacon detected on the ring, or the beacon detected is of some other type than the known beacons.
Recovery	The last beacon frame detected on the ring had the recovery bit set. This type of beacon frame is sent out by a station before acting as a recovery station on the ring.

Table 5-4. **Beacon Type Definitions (Continued)**

Beacon Type	Definition
SignalLoss	The last beacon frame detected on the ring was a signal loss beacon. This type of beacon frame is sent out by a station which has 'contention timeout' and is participating in the monitor contention process when it detects a signal loss.
BitStreaming	The last beacon frame detected on the ring was a bit streaming beacon. This type of beacon frame is sent out by a station which has 'monitor timeout' and is participating in the monitor contention process but does not receive any claim token.
ContentionStreaming	The last beacon frame detected on the ring was a contention streaming beacon. This type of beacon frame is sent out by a station which has monitor contention timeout expired, is participating in the monitor contention process, and receives multiple claim tokens and cannot solve the contention within one second.

Active Monitor

This area of the Token Ring DCE Ring Information view provides information on the active monitor for this ring. This section provides the following fields:

Active Monitor
Displays the MAC address of the active monitor on this ring. If this address is unknown, then the value is equal to six octets of zero.

Monitor Contentions
Displays the number of times the ring has entered the monitor contention state from the normal ring state, or ring purge state. The monitor contention state resulting from the ring leaving the beacon state is not counted.

Station Table

This area of the Token Ring DCE Ring Information view provides information on the station table for this ring, including the maximum number, number of active stations, and table changes. This section provides the following fields:

Max Stations
Displays the operational size of the station information table. This size is the maximum number of stations for which information can be collected. A ring is limited to a maximum number of 256 active stations. The station table can also contain entries for inactive stations, resulting in a combination of active and inactive stations. Any combination of inactive and active stations is allowable, with the exception that the active stations must be fewer than the

maximum of 256, up to the current value of this field. For example, if the value of this field is 112, the station table could contain entries for 100 inactive stations, and 12 active stations.

Active Stations
Displays the number of active stations in this ring. This reflects the number of active stations in the station information table.

Station Changes
Displays the number of add and delete events in the station information table associated with this ring. If no changes have occurred, the value is zero.

Station Deletes
Displays the number of times stations were removed from the station information table due to either aging out or a table overflow.

Last Deleted
Displays the value of SysUpTime when the last station was removed from the station information table. If no stations have been removed, the value is zero.

Age Interval
Displays the amount of time used to age stations from the station information table. If a station has had a status of inactive in the last time interval, it may be removed from the station information table. A value of zero indicates that no aging will occur.

Token Ring DCE Performance View

The Token Ring DCE Performance views display a Multi-Attribute Line Graph that provides a general indication of network activity for the DCE. The attributes displayed are pre-selected and use colors to represent different statistics. The attributes are displayed as current values, average values, and peak values. The peak values display the highest statistical value reached since SPECTRUM began logging and the current time, or the time at which the peak value was reached if one exists.

To access this view, do the following:

1. Highlight the DCE icon in the Device view.

2. Selecting **DCE Performance** from the Icon Subviews menu.

or:

1. Highlight the DCE icon in the DCE view.

2. Selecting **DCE Performance** from the Icon Subviews menu.

This view also has the following fields:

DCE
Displays the numbers identifying the position of the module and the exact DCE

for which this performance information applies. The numbers are displayed in the following format: Module.DCE (i.e., 6.1 means DCE 1 on module 6).

Module Ring
Displays a number indicating which token ring the DCE is currently connected to and monitoring.

DCE Ring Statistics

Accesses the Token Ring DCE Ring Statistics view, described later in this section.

DCE Ring Detail

Accesses the Token Ring DCE Ring Detail view, described later in this section.

Token Ring DCE Ring Statistics View

The Token Ring DCE Ring Statistics view provides three color-coded pie charts displaying a breakdown of the frames. Table 5-5 through Table 5-7 list the information provided by these pie charts. Three buttons at the bottom of each pie chart allow selection of the way in which the data is represented (Total, Delta, and Accum). Another button, **Clear**, works in conjunction with the **Accum** button. For more information on these buttons, refer to the ***SPECTRUM Views***.

Access the Token Ring DCE Ring Statistics view by clicking the **DCE Ring Statistics** button in the Token Ring DCE Performance view.

This view also has the following fields:

DCE
Displays the numbers identifying the position of the module and the exact DCE for which this performance information applies. The numbers are displayed in the following format: Module.DCE (i.e., 6.1 means DCE 1 on module 6).

NAUN
Displays the MAC address of the last known Next Active Upstream Neighbor (NAUN) for this station.

Table 5-5. **Total Frames Breakdown Pie Chart Definitions**

Statistic	Definition
Total Good	The total number of LLC and MAC frames, excluding frames with errors, detected on the ring by this DCE.
Total Bad	The total number of LLC and MAC frames with errors detected on the ring by this DCE.

Table 5-6. **MAC and LLC Frame Breakdown Pie Chart Definitions**

Statistic	Definition
MAC	The total number of MAC frames, including frames with errors detected on the ring by this DCE.
LLC NonUcast	The total number of LLC frames, including frames with errors detected on the ring that were directed to an LLC broadcast address (i.e., 0xFFFFFFFFFFFF or 0xC000FFFFFFFF) or a local or global multicast or functional address (i.e., 0xC000xxxxxxxx)..
LLC Ucast	The total number of LLC frames, including frames with errors, detected on the ring that were directed to an LLC unicast address.

Table 5-7. **Other Frames Breakdown Pie Chart Definitions**

Statistic	Definition
Good Error Report	The total number of Soft Error Report frames, excluding frames with errors, detected on the ring by this DCE.
Beacon	The total number of Beacon frames, including frames with errors, detected on the ring by this DCE.
Ring Purge	The total number of Ring Purge frames, including frames with errors, detected on the ring by this DCE.
Claim Token	The total number of Claim Token frames, including frames with errors, detected on the ring by this DCE.

Token Ring DCE Ring Detail View

The Token Ring DCE Ring Detail view provides two color-coded pie charts displaying a breakdown of the errors. Three buttons at the bottom of each pie chart allow selection of the way in which the data is represented (Total, Delta, and Accum). Another button, **Clear**, works in conjunction with the **Accum** button. For more information on these buttons, refer to the *SPECTRUM Views*. Table 5-8 and Table 5-9 list the information provided by these pie charts.

Access the Token Ring DCE Ring Detail view by clicking the **DCE Ring Detail** button in the Token Ring DCE Performance view.

This view also has the following fields:

DCE
Displays the numbers identifying the position of the module and the exact DCE

for which this performance information applies. The numbers are displayed in the following format: Module.DCE (i.e., 6.1 means DCE 1 on module 6).

Soft Error Frames
Displays the total number of Soft Error Report frames detected on the ring. Every time a soft error occurs (i.e., Line, AC, Lost Frame) the station that detects the error will transmit a Soft Error Report frame. A high presence of Soft Error Report frames indicates a large number of errors reported by stations on the ring.

Table 5-8. **Isolating Errors Breakdown Pie Chart Definitions**

Statistic	Definition
Line	The total number of corrupted frames detected on this DCE. This indicates an intermittent cable or hardware error. A line error can be caused by the following conditions: • A frame was repeated or duplicated. • A code violation existed between the starting delimiter (SDEL) and the ending delimiter (EDEL). • A code violation existed within a token. • An FCS error existed. • Any of the above conditions existed and the Error Detection Indicator (EDI) was zero.
Burst	The total number of signals detected on this DCE that were not accepted by a station port on the ring, which indicates a bit encoding error (the absence of transitions for five half-bit times between the SDEL and the EDEL).
AC	The total number of AC errors detected on this DCE.
Abort	The total number of abort delimiter transmitters detected on this DCE.
Internal	The total number of internal errors detected on this DCE.

Table 5-9. **Non-Isolating Errors Breakdown Pie Chart Definitions**

Statistic	Definition
Lost Frame	The total number of frames that were transmitted on the ring but did not return to the transmitting station. The frame was lost somewhere in the ring, but there is no way to pinpoint where. This can be caused by stations entering or leaving the ring.
Congestion	The total number of receive congestion errors detected on this DCE.
Frame Copied	The total number of frames addressed to a specific station, with the Frame Status A bits already set to 1, indicating a possible line disturbance or duplicate address on the ring.

Table 5-9. **Non-Isolating Errors Breakdown Pie Chart Definitions (Continued)**

Statistic	Definition
Token	The total number of times the DCE has detected an error on the ring that required the transmission of a new token. A token error can be caused by the following conditions: • A token with non-zero priority and a monitor count bit set to 1. • A frame and monitor count bit set to 1. • No token or frame received within 10ms. • The starting delimiter/token sequence had a code violation.
Frequency	The total number of frequency errors detected on this DCE.

Token Ring DCE Station Table

The Token Ring DCE Station Table view provides information related to the stations on the ring, as well as access to more detailed views. Double-click a row in the table to access the Station Detail view which contains two color-coded pie charts that provide a breakdown of Isolating and Non-Isolating Errors. The definitions of these errors are described later in this section.

To access this table, do the following:

1. Highlight the DCE icon in the Device view.

2. Select **DCE Stations** -> **Station Table** from the Icon Subviews menu.

or:

1. Highlight the DCE icon in the DCE view.

2. Select **DCE Stations** -> **Station Table** from the Icon Subviews menu.

The Token Ring DCE Station Table view provides the following buttons which access additional views:

DCE Station Isolating Errors

Accesses the DCE Station Isolating Errors Table view, described later in this section.

DCE Station Non-Isolating Errors

Accesses the DCE Station Non-Isolating Errors Table view, described later in

this section.

Station Detail

Accesses the Token Ring Station Detail view, described later in this section.

Station Control

Accesses the Token Ring Station Control view, described later in this section.

DCE Station Table

The DCE Station Table provides a listing of all the stations the DCE detects on the ring. This listing includes information on the status and errors for each station. Double-click a table item to open the Token Ring Station Detail view, described later in this section. This table also has several buttons allowing change of the presentation of information and sorting through the stations. The DCE Station Table provides the following information:

MAC Address
Displays the MAC Address of the station.

Station Status
Displays the current state of the station. Possible values are Active, NotInRingPoll, Inactive, or ForcedRemoval.

Duplicate Addr Errors
Displays the number of times the station experienced a duplicate address error. This error is reported by a station via a Report Monitor Error MAC frame.

In Beacon Errors
Displays the beacon frames sent by the station and detected on the ring.

Out Beacon Errors
Displays the number of beacon frames detected on the ring that name the station as the NAUN.

Insertions
Displays the number of times that the station was detected inserting into the ring.

Update

Allows update of the information in the table.

MAC/Canonical

Allows toggling between a MAC and Canonical representation of the station's address in the MAC Address field.

Set Filter/Clear Filter

Allows setting of a value to filter a selected column against, or clearing a previously set filter value.

Sort Up/Sort Down/Unsort

Allows sorting of the table based on the values in a selected column.

DCE Station Isolating Errors Table View

The DCE Station Isolating Errors Table view provides a listing of all the stations the DCE detects on the ring, and provides a breakdown of the Isolating Errors for each. This table also has several buttons allowing change of the presentation of information and sorting through the stations. Double-click a row in the table to access the Station Detail view which contains two color-coded pie charts that provide a breakdown of Isolating and Non-Isolating Errors.

The DCE Station Isolating Errors Table view provides the following information:

MAC Address
Displays the MAC Address of the station.

In Line
Displays the total number of line errors reported by the station in error report frames, and detected on the ring.

Out Line
Displays the total number of line errors reported by the nearest active downstream neighbor of the station in error report frames, and detected on the ring.

In Burst
Displays the total number of burst errors reported by the station in error

report frames, and detected on the ring.

Out Burst
Displays the total number of burst errors reported by the nearest active downstream neighbor of the station in error report frames, and detected on the ring.

In AC
Displays the total number of Address Copied (AC) errors reported by the station in error report frames, and detected on the ring.

Out AC
Displays the total number of AC errors reported by the nearest active downstream neighbor of the station in error report frames, and detected on the ring.

Abort
Displays the total number of abort delimiter transmitted errors reported by the station in error report frames, and detected on the ring.

Internal
Displays the total number of adapter internal errors reported by the station in error report frames, and detected on the ring.

Update

Allows update of the information in the table.

MAC/Canonical

Allows toggling between a MAC and Canonical representation of the station's address in the MAC Address field.

Set Filter/Clear Filter

Allows setting of a value to filter a selected column against, or clear a previously set filter value.

Sort Up/Sort Down/Unsort

Allows sorting of the table based on the values in a selected column.

DCE Station Non-Isolating Errors Table View

The DCE Station Non-Isolating Errors Table view provides a listing of all the stations the DCE detects on the ring, and provides a breakdown of the Non-Isolating Errors for each. This table also has several buttons allowing change of the presentation of information and sort through the stations. Double-click a row in the table to access the Station Detail view which contains two color-

coded pie charts that provide a breakdown of Isolating and Non-Isolating Errors.

The DCE Station Non-Isolating Errors Table view provides the following information:

MAC Address
Displays the MAC Address of the station.

Lost Frames
Displays the total number of frames lost errors reported by the station in error report frames, and detected on the ring.

Congestion
Displays the total number of receive congestion errors reported by the station in error report frames, and detected on the ring.

Frame Copied
Displays the total number of frame copied errors reported by the station in error report frames, and detected on the ring.

Token
Displays the total number of token errors reported by the station in error report frames, and detected on the ring.

Frequency
Displays the total number of frequency errors reported by the station in error report frames, and detected on the ring.

Update

Allows update of the information in the table.

MAC/Canonical

Allows toggling between a MAC and Canonical representation of the station's address in the MAC Address field.

Set Filter/Clear Filter

Allows setting of a value to filter a selected column against, or clear a previously set filter value.

Sort Up/Sort Down/Unsort

Allows sorting of the table based on the values in a selected column.

Token Ring Station Detail View

The Token Ring Station Detail view provides a detailed view of the selected station from the DCE Station Table. This detailed view includes two color-coded pie charts breaking down Isolating and Non-Isolating errors on the station, as well as information on the status for each station. Table 5-10 and Table 5-11 provide information on the pie charts.

Table 5-10. **Isolating Errors Breakdown Definitions**

Statistic	Definition
In Line	Displays the total number of line errors reported by the station in error report frames, and detected on the ring.
Out Line	Displays the total number of line errors reported by the nearest active downstream neighbor of the station in error report frames, and detected on the ring.
In Burst	Displays the total number of burst errors reported by the station in error report frames, and detected on the ring.
Out Burst	Displays the total number of burst errors reported by the nearest active downstream neighbor of the station in error report frames, and detected on the ring.
In AC	Displays the total number of Address Copied (AC) errors reported by the station in error report frames, and detected on the ring.
Out AC	Displays the total number of AC errors reported by the nearest active downstream neighbor of the station in error report frames, and detected on the ring.
Abort	Displays the total number of abort delimiter transmitted errors reported by the station in error report frames, and detected on the ring.
Internal	Displays the total number of adapter internal errors reported by the station in error report frames, and detected on the ring.

Table 5-11. **Non-Isolating Errors Breakdown Definitions**

Statistic	Definition
Lost Frames	Displays the total number of frames lost errors reported by the station in error report frames, and detected on the ring.
Congestion	Displays the total number of receive congestion errors reported by the station in error report frames, and detected on the ring.
Frame Copied	Displays the total number of frame copied errors reported by the station in error report frames, and detected on the ring.

Table 5-11.   **Non-Isolating Errors Breakdown Definitions (Continued)**

Statistic	Definition
Token	Displays the total number of token errors reported by the station in error report frames, and detected on the ring.
Frequency	Displays the total number of frequency errors reported by the station in error report frames, and detected on the ring.

Source Index
Displays the index of the entry in the table. This index identifies the DCE that is the source of the information. Only those DCEs that provide these statistics are in this table.

MAC Address
Displays the MAC Address of the station.

Last NAUN
Displays the MAC address of the last known Next Active Upstream Neighbor (NAUN) for this station.

Station Status
Displays the current state of the station. Possible values are; Active, NotInRingPoll, Inactive, or ForcedRemoval.

First Entered
Displays the value of SysUpTime at the time the station first entered the ring. If the time is unknown, the value is zero.

Last Entered
Displays the value of SysUpTime at the time the station last entered the ring. If the time is unknown, the value is zero.

Last Exited
Displays the value of SysUpTime at the time the station last exited the ring. If the time is unknown, the value is zero.

Duplicate Addr Errors
Displays the number of times the station experienced a duplicate address error. This error is reported by a station via a Report Monitor Error MAC frame.

In Beacon Errors
Displays the beacon frames sent by the station and detected on the ring.

Out Beacon Errors
Displays the number of beacon frames detected on the ring that name the station as the NAUN.

Insertions
Displays the number of times that the station was detected inserting into the ring.

Token Ring Staton Control View

The Token Ring Station Control view provides detailed information on the configuration of the selected station from the DCE Station Table. This view allows you to update the configuration of the station using the fields provided. The Token Ring Station Control view provides the following information:

Source Index
Displays the index of the entry in the table. This index identifies the DCE that is the source of the information. Only those DCEs that provide the previously described statistics are in this view.

MAC Address
Displays the MAC Address of the station.

Physical Location
Displays the physical location of the station on the ring. If unknown, the value is four octets of zero.

Remove Station
This field provides a button, allowing you to send a Remove Station MAC frame to the station.

Functional Address
Displays the functional address used by the station. If unknown, the value is four octets of zero.

Update Station
Provides a button which updates the configuration information for the station.

Functional Classes
Displays the functional classes that are allowed to be active on the station. If unknown, the value is two octets of zero.

Last Updated
Displays the value of SysUpTime when the station configuration information was last updated completely. If the information has never been retrieved, the value is zero. The station configuration information is updated whenever a station is first detected on the ring.

Group Address
Displays the group address for the station. If unknown, or unassigned, the value is zero.

Product ID
Displays a brief string describing the product specified by the vendor. If unavailable, the value is a zero length string.

Maximum Priority
Displays the maximum priority this station is allowed to use. If unknown, the value is two octets of zero.

Node Version
Displays a string representing the version of the station software. If unavailable, the value is a zero length string.

Station ID
Displays a string used to uniquely identify the station. This value may be equal to the station's MAC address. If unknown, the value is six octets of zero.

Chapter 6

Event and Alarm Messages

What Is in This Chapter

This chapter describes the events and alarms generated by the SynOptics Series 5000 management modules and provides any probable cause messages corresponding to these events.

Events and alarms originate as generic SNMP traps sent from the physical device. These traps, or unsolicited messages, translate as SPECTRUM events and display in the Event Log. For more information, refer to the MIB documentation for the specific device.

For each event/alarm, the following information is provided:

- The event code
- The event/alarm message
- Any probable cause message for the mapped alarm
- Any recommended actions

Brackets ({}) indicate variable data inserted in a message.

SynOptics Series 5000 Hub Chassis Events and Alarms

Table 6-1 provides a list of events and probable cause messages for the SynOptics Series 5000 hub chassis.

Table 6-1. **SynOptics Series 5000 Hub Chassis Events and Alarms**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010203 {d "%w- %d %m-, %Y - %T"} - The model created is not the same type as the device. Model type = {t}, Name = {m}, User = {u}. (event [{e}])	**CsPCause/Prob00010203** The model created is not the same type as the device.
CsEvFormat/Event00010306 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been cold started.	**No Probable Cause Message**
CsEvFormat/Event00010307 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been warm started.	**No Probable Cause Message**
CsEvFormat/Event00010308 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected a communication Link Down.	**CsPCause/Prob00010308** Communication link is down.
CsEvFormat/Event00010309 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected a communication Link Up.	**No Probable Cause Message**
CsEvFormat/Event0001030a {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected an Authentication Failure.	**CsPCause/Prob0001030a** Authorization failure. Other user is trying to connect to device with an invalid community string.
CsEvFormat/Event0001030b {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. EGP Neighbor IP address is {0 1}.	**CsPCause/Prob0001030b** Lost contact with EGP neighbor.

Ethernet NMM Agent Events and Alarms

Table 6-2 provides a list of events and probable cause messages for the SynOptics 5000 Ethernet NMM Agent.

Table 6-2. **Ethernet NMM Agent Events and Alarms**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010306 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been cold started. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event00010307 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m} has been warm started. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event00010308 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Down. (event [{e}])	**CsPCause/Prob00010308** Communication link is down.
CsEvFormat/Event00010309 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Up. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event0001030a {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an Authentication Failure. (event [{e}])	**CsPCause/Prob0001030a** Authorization failure. Other user is trying to connect to device with an invalid community string.
CsEvFormat/Event0001030b {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. EGP Neighbor IP address is {O 1}. (event [{e}])	**CsPCause/Prob0001030b** Lost contact with EGP neighbor.
CsEvFormat/Event00010810 {d "%w- %d %m-, %Y - %T"} - RMON rising threshold trap received from model {m} of type {t}. AlarmVariable {O 2}, AlarmSampleType {I 3}, AlarmValue {I 4}, and AlarmRisingThreshold {I 5}.	**No Probable Cause Message**

Table 6-**2.**   **Ethernet NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010811 {d "%w- %d %m-, %Y - %T"} - RMON falling threshold trap received from model {m} of type {t}. AlarmVariable {O 2}, AlarmSampleType {I 3}, AlarmValue {I 4}, and AlarmFallingThreshold {I 5}.	**No Probable Cause Message**
CsEvFormat/Event01020001 {d "%w- %d %m-, %Y - %T"} A "hot swap" has been detected in slot {O 2} (slot is second digit). Operational state is {T Syn5OpTable 3}. {t} (name - {m}). (Trap type: 0x01) - (event [{e}]	**CsPCause/Prob01020001** DCE CONTACT LOST PROBABLE CAUSES: 1) One or more DCEs on the NMM have lost contact. RECOMMENDED ACTIONS: 1) Check the Device View to ensure the DCE is on a backplane segment that has a network feed. 2) Check the network connection to the backplane segment that the DCE is monitoring.
CsEvFormat/Event01020002 {d " %w- %d %m-, %Y - %T"} The operational condition of component {O 2} is {T Syn5OpTable 3}. [component first digit - (1) Supervisory Module (2) Backplane (3) Module (4) Power Supply (5) Tempt Sensor (6) Fan (7) Clock]. {t} (name - {m}). (Trap type: 0x02) - (event [{e}])	**CsPCause/Prob01020002** CHASSIS PROBLEM PROBABLE CAUSES: 1) The component or sub-component listed in the description has a problem condition, either warning, non-fatal, or fatal. RECOMMENDED ACTIONS: 1) Check the component or sub-component listed in the problem description.

Table 6-2.   Ethernet NMM Agent Events and Alarms (Continued)

Message in the Event Log	Alarm Manager Probable Cause Message

CsEvFormat/Event01020012
 	
{d "%w- %d %m-, %Y - %T"} A port auto-partition condition has been detected on {O 2} (board.port). The port partition status is {T S5EPortPartS 1}. The port jabber status is {T S5EPortJabberS 3}. {t} (name - {m}). (Trap type: 0x01020012) - (event [{e}])
	CsPCause/Prob01020012
	
	ENET PORT AUTO PARTITION
	
	PROBABLE CAUSES:
	  1) The port has been isolated by the NMM from the network due to a faulty device, excessive collisions, DTE jabbering, or a wiring problem. This could include bad connections, topological loops or protocol issues, such as broadcast or multicast echo requests.
	
	RECOMMENDED ACTIONS:
	  1) Check or replace the network device or the device's transceiver that is connected to the autopartitioned port.
	  2) Check or replace any wiring problems such as bad connections or topological loops.

CsEvFormat/Event01020013
 	
{d "%w- %d %m-, %Y - %T"} Port {O 2} (board.port) has detected an Ethernet DTE is jabbering. The jabber status is {T S5EPortJabberS 1}. {t} (name - {m}). (Trap type: 0x01020013) - (event [{e}])
	CsPCause/Prob01020013
	
	ENET PORT DTE JABBERING
	
	PROBABLE CAUSES:
	  1) An Ethernet port has been flagged as jabbering. Jabbering occurs when a station continues to transmit a signal.
	
	RECOMMENDED ACTIONS:
	  1) Check or replace the network device or the device's transceiver.
	  2) Check or replace any wiring problems such as bad connections.

Table 6-2.   **Ethernet NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event01020014 {d "%w- %d %m-, %Y - %T"} Port {O 2} (board.port) in a redundant pair has developed a fault. The port operational status is {T S5ERedPtOperS 1}. The port's companion is {I 3}.{I 5}. The port partition status is {T S5EPortPartS 7}. The port link status is {T S5EPortLinkS 9}. The port jabber status is {T S5EPortJabberS 11}. {t} (name - {m}). (Trap type: 0x01020014) - (event [{e}])	**CsPCauseProb01020014** ENET REDUNDANT PORT FAILURE PROBABLE CAUSES: 1) An Ethernet port that is in a redundant pair has developed a fault.
CsEvFormat/Event01020015 {d "%w- %d %m-, %Y - %T"} The NMM has detected an invalid remote operational status on {O 2} (board.port). The port remote operational status is {T S5ERedRemOperS 1}. The port redundancy mode is {T S5ERedPtRedunM 3}. {t} (name - {m}). (Trap type: 0x01020015) - (event [{e}])	**CsPCause/Prob01020015** ENET REDUNDANT PORT BAD REMOTE CONFIGURATION DETECTED PROBABLE CAUSES: 1) An NMM has detected an invalid remote operation status on a port set for redundancy.

FDDI NMM Agent Events and Alarms

Table 6-3 provides a list of events and probable cause messages for the SynOptics 5000 FDDI NMM Agent.

Table 6-3.   **FDDI NMM Agent Events and Alarms**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010306 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been cold started. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event00010307 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m} has been warm started. (event [{e}])	**No Probable Cause Message**

Table 6-3. **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010308 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Down. (event [{e}])	**CsPCause/Prob00010308** Communication link is down.
CsEvFormat/Event00010309 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Up. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event0001030a {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an Authentication Failure. (event [{e}])	**CsPCause/Prob0001030a** Authorization failure. Other user is trying to connect to device with an invalid community string.
CsEvFormat/Event0001030b {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. EGP Neighbor IP address is {O 1}. (event [{e}])	**CsPCause/Prob0001030b** Lost contact with EGP neighbor.

CsEvFormat/Event01020002
 	
{d "%w- %d %m-, %Y - %T"} The operational condition of component {O 2} is {T Syn5OpTable 3}. [component first digit - (1) Supervisory Module (2) Backplane (3) Module (4) Power Supply (5) Temp Sensor (6) Fan (7) Clock]. {t} (name - {m}). (Trap type: 0x02) - (event [{e}])
	CsPCause/Prob01020002
	
	CHASSIS PROBLEM
	
	PROBABLE CAUSES:
	  1) The component or sub-component listed in the description has a problem condition, either warning, non-fatal, or fatal.
	
	RECOMMENDED ACTIONS:
	  1) Check the component or sub-component listed in the problem description.

CsEvFormat/Event00010810 {d "%w- %d %m-, %Y - %T"} - RMON rising threshold trap received from model {m} of type {t}. AlarmVariable {O 2}, AlarmSampleType {I 3}, AlarmValue {I 4}, and AlarmRisingThreshold {I 5}.	**No Probable Cause Message**

Table 6-3.   **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010811 {d "%w- %d %m-, %Y - %T"} - RMON falling threshold trap received from model {m} of type {t}. AlarmVariable {O 2}, AlarmSampleType {I 3}, AlarmValue {I 4}, and AlarmFallingThreshold {I 5}.	**No Probable Cause Message**

CsEvFormat/Event01020001
 	
{d "%w- %d %m-, %Y - %T"} A "hot swap" has been detected in slot {O 2} (slot is second digit). Operational state is {T Syn5OpTable 3}. {t} (name - {m}). (Trap type: 0x01) - (event [{e}])
	CsPCause/Prob01020001
	
	DCE CONTACT LOST
	
	PROBABLE CAUSES:
	   1) One or more DCE's on the NMM have lost contact.
	
	RECOMMENDED ACTIONS:
	   1) Check the Device View to ensure the DCE is on a backplane segment that has a network feed.
	   2) Check the network connection to the backplane segment that the DCE is monitoring.

CsEvFormat/Event36000100 {d "%w- %d %m-, %Y - %T"} A failure has been detected in either the primary power supply, the secondary power supply or both. The power supply status is {T ChasPSStatus 1}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.3.2.1.6.0, 1.3.6.1.4.1.45.3.2.2.6.0, 1.3.6.1.4.1.45.3.2.3.6.0) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000101 {d "%w- %d %m-, %Y - %T"} One or more fans are either non-operational or have an unknown operating status. The reported fan status is {T ChasFanStatus 1}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.3.2.1.6.1, 1.3.6.1.4.1.45.3.2.2.6.1, 1.3.6.1.4.1.45.3.2.3.6.1) - (event [{e}])	**CsPCause/Prob36000101** CONCENTRATOR FAN FAILURE One or more fans are either non-operational or have an unknown operating status. Replace the fan or fan assembly.

Table 6-3.   **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event3600010b {d "%w- %d %m-, %Y - %T"} A board power supply failure has been detected. The slot is {I 2}. The power supply status is {T BdPSStatus 1}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.3.2.1.6.27, 1.3.6.1.4.1.45.3.2.2.6.27, 1.3.6.1.4.1.45.3.12.1.6.27) - (event [{e}])	**CsPCause/Prob3600010b** MODULE POWER SUPPLY FAILURE A module's power supply has failed. Replace the power supply.
CsEvFormat/Event36000110 {d "%w- %d %m-, %Y - %T"} The module in slot {O 2} has the status LED off. The module status is {T BoardStatus 1}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.3.2.1.6.11, 1.3.6.1.4.1.45.3.2.2.6.11, 1.3.6.1.4.1.45.3.12.1.6.11) - (event [{e}])	**CsPCause/Prob36000110** BOARD LED FAILURE Verify the module's operational status. Power down the concentrator and reseat the module. If the situation continues, replace the module.
CsEvFormat/Event36000115 {d "%w- %d %m-, %Y - %T"} FDDI logical topology change notification. The number of Primary ring changes is {I 1}, Secondary ring is {I 2}. The number of logical path topology changes is {I 3}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.36) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000116 {d "%w- %d %m-, %Y - %T"} The link error monitor has observed a link error rate cutoff or alarm threshold condition on port {O 2}. The long term average link error rate is {I 5}. The estimate greater than or equal alarm condition is {T T36000116_LCon 1}. Cutoff is {I 3}. Alarm Threshold is {I 4}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.37) - (event [{e}])	**CsPCause/Prob36000116** FDDI PORT LINK ERROR CONDITION PROBABLE CAUSE: The link error monitor has observed a port with a link error rate beyond either the link error rate cutoff or the alarm threshold. RECOMMENDED ACTION: Check the device transceiver and/or the wiring connections.

Table 6-3. **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message

CsEvFormat/Event36000117
 	
{d "%w- %d %m-, %Y - %T"} An undesirable or illegal connection attempt was detected on port {O 2}. The connection was {T 36000117_ACPT 6}. The port PC type is {T T36000117_PCTy 1}. The port's connect state is {T T36000117_PCSt 4}. The neighbor port PC type is {T T36000117_PCTy 3}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.38) - (event [{e}])
	CsPCause/Prob36000117
	
	FDDI PORT UNDESIRABLE CONNECTION
	
	PROBABLE CAUSE:
	An undesirable or illegal connection attempt was detected on a port.
	
	RECOMMENDED ACTIONS:
	  1) Check the type of the neighbor port reporting the problem. Connections that are A-to-A or B-to-B can cause a twisted ring.
	  2) Check that there are no M-to-M connections or other violations of local connection policy.

CsEvFormat/Event36000118 {d "%w- %d %m-, %Y - %T"} Two or more stations with the same MAC address have been detected on the network. The RMT Duplicate Address Flag is {T T36000118_DAFl 1}. The SMT address is {S 3}. The Upstream Neighbor Address is {S 5} with a Duplicate Address Flag of {T T36000118_DAFl 4}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.39) - (event [{e}])	**CsPCause/Prob36000118** FDDI DUPLICATE MAC ADDRESS PROBABLE CAUSE: Two or more stations with the same MAC address were detected on the network. RECOMMENDED ACTION: MAC addresses must be unique on the network. Locate the offending stations and swap the adaptor cards.

Table 6-3. **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat//Event36000119 {d "%w- %d %m-, %Y - %T"} The bad FDDI MAC frames threshold was exceeded for {X 2}. The frame error condition is {T T36000119_FCon 1}. Frame count is {I 3}. Error count is {I 4}. Lost count is {I 5}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.40) - (event [{e}])	**CsPCause/Prob36000119** FDDI MAC FRAME ERROR PROBABLE CAUSE: The bad FDDI MAC frames threshold was exceeded or an errored frame was detected by this station. There may be a problem between this station and its upstream neighbor. The upstream neighbor may be transmitting errors or leaving the ring. RECOMMENDED ACTIONS: Identify the source of bad frames and correct the problem. 1) Check link error monitor counts for stations and ports immediately upstream. 2) Look at Ring_Op counts, Lost Frames and Error frame counts of devices on the network to check for ring instability or to see if another device is reporting chronic problems.
CsEvFormat/Event3600011a {d "%w- %d %m-, %Y - %T"} Station {X 2} is experiencing local buffer congestion. The Not Copied Condition is {T T3600011a_CCon 1}. The Not Copied count is {I 3}. The {O 5} frames successfully received count is {I 4}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.41) - (event [{e}])	**CsPCause//Prob3600011a** FDDI MAC NOT COPIED PROBABLE CAUSE: A station is experiencing local buffer congestion. RECOMMENDED ACTION: Identify the source of buffer congestion and correct it.
CsEvFormat/Event3600011b {d "%w- %d %m-, %Y - %T"} A change was detected in upstream or downstream neighbors for station {X 2}. The Upstream Neighbor is now {S 1}, it was {S 3}. The Downstream Neighbor is now {S 4}, it was {S 6}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.42) - (event [{e}])	**No Probable Cause Message**

Table 6-3. **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event3600011c {d "%w- %d %m-, %Y - %T"} Port {O 2} has exhibited elasticity buffer errors. The elasticity buffer error count is {I 1}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.6.43) - (event [{e}])	**CsPCause/Prob3600011c** FDDI PORT ELASTICITY BUFFER ERROR PROBABLE CAUSE: A port has exhibited elasticity buffer errors. A station may be transmitting frames that are too long. Or a station may be using a clock that is out of tolerance. RECOMMENDED ACTIONS: 1) Make sure the latest software drivers are running on the station attached to the port reporting the problem or immediately upstream of the problem. 2) Check for faulty hardware. 3) Monitor the port to determine that the condition does not persist. 4) Check for other signs of ring instability such as high Ring_Op, Lost Frame, or Error Frame counts.
CsEvFormat/Event3600011d {d "%w- %d %m-, %Y - %T"} The {T T3600011d_RING 3} dual ring peer wrap flag is {T T3600011d_PEER 4} at a station. Attachment configuration for the station is {T T3600011d_TCFS 1}. SMT entry number is {O 2}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.1) - (event [{e}])	**CsPCause/Prob3600011d** FDDI SMT PEER WRAP PROBABLE CAUSE: The dual ring is wrapped at a station (wrapA or wrapB). Note that this is a legal configuration and may be intentional. RECOMMENDED ACTION: Verify all connections.
CsEvFormat/Event3600011e {d "%w- %d %m-, %Y - %T"} Two or more stations with the same MAC address have been detected on the network. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.2) - (event [{e}])	**No Probable Cause Message**

Table 6-3.   **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event3600011f {d "%w- %d %m-, %Y - %T"} The bad FDDI MAC frames threshold was exceeded for {0 2}. The frame error condition is {T T3600011f_FCon 1}. Frame count is {I 3}. Error count is {I 4}. Lost count is {I 5}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.3) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000120 {d "%w- %d %m-, %Y - %T"} A station is experiencing local buffer congestion. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.4) - (event [{e}].	**No Probable Cause Message**
CsEvFormat/Event36000121 {d "%w- %d %m-, %Y - %T"} The link error monitor has observed a link error rate cutoff or alarm threshold condition. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.5) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000122 {d "%w- %d %m-, %Y - %T"} An undesirable or illegal connection attempt was detected on port {O 2}. The port PC type is {T T36000117_PCTy 1}. The port PC neighbor type is {T T36000117_PCTy 3}. The port's connect state is {T T36000117_PCSt 4}. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.6) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000123 {d "%w- %d %m-, %Y - %T"} A port has exhibited elasticity buffer errors. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.7) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000124 {d "%w- %d %m-, %Y - %T"} MAC has been inserted into the path. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.8) - (event [{e}])	**No Probable Cause Message**

Table 6-**3.** **FDDI NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event36000125 {d "%w- %d %m-, %Y - %T"} Port {O 2} has moved to the {T T36000125_CurP 1} path. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.2.7.0.6.9) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000126 {d "%w- %d %m-, %Y - %T"} A {T T3600011d_RING 1} station has either been moved, inserted, or removed from the ring, either by a software or a physical change. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.1.3.4.0.6.1) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event36000127 {d "%w- %d %m-, %Y - %T"} The dual ring is wrapped at a concentrator. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.1.3.4.0.6.2) - (event [{e}])	**CsPCause/Prob36000127** FDDI RING WRAP PROBABLE CAUSE: The dual ring is wrapped at a concentrator (wrapA or wrapB). Note that this is a legal configuration and may be intentional. RECOMMENDED ACTION: Verify all connections.
CsEvFormat/Event36000128 {d "%w- %d %m-, %Y - %T"} A port on this concentrator was part of a trace. {t} (name - {m}). (Trap type: 1.3.6.1.4.1.45.1.3.4.0.6.3) - (event [{e}])	**No Probable Cause Message**

Token Ring NMM Agent Events and Alarms

Table 6-4 provides a list of events and probable cause messages for the SynOptics 5000 Token Ring NMM Agent.

Table 6-4.   **Token Ring NMM Agent Events and Alarms**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010306 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been cold started. (event [{e}])	**No Probable Cause Message**
CsEvFormat//Event00010307 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m} has been warm started. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event00010308 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Down. (event [{e}])	**CsPCause/Prob00010308** Communication link is down.
CsEvFormat/Event00010309 {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Up. (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event0001030a {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an Authentication Failure. (event [{e}])	**CsPCause/Prob0001030a** Authorization failure. Other user is trying to connect to device with an invalid community string.
CsEvFormat/Event0001030b {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. EGP Neighbor IP address is {O 1}. (event [{e}])	**CsPCause/Prob0001030b** Lost contact with EGP neighbor.

Table 6-**4.** **Token Ring NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event00010810 {d "%w- %d %m-, %Y - %T"} - RMON rising threshold trap received from model {m} of type {t}. AlarmVariable {O 2}, AlarmSampleType {I 3}, AlarmValue {I 4}, and AlarmRisingThreshold {I 5}.	**No Probable Cause Message**
CsEvFormat/Event00010811 {d "%w- %d %m-, %Y - %T"} - RMON falling threshold trap received from model {m} of type {t}. AlarmVariable {O 2}, AlarmSampleType {I 3}, AlarmValue {I 4}, and AlarmFallingThreshold {I 5}.	**No Probable Cause Message**

CsEvFormat/Event01020001
 	
{d "%w- %d %m-, %Y - %T"} A "hot swap" has been detected in slot {O 2} (slot is second digit). Operational state is {T Syn5OpTable 3}. {t} (name - {m}). (Trap type: 0x01) - (event [{e}]
	CsPCause/Prob01020001
	
	DCE CONTACT LOST
	
	PROBABLE CAUSES:
	  1) One or more DCE's on the NMM have lost contact.
	
	RECOMMENDED ACTIONS:
	  1) Check the Device View to ensure the DCE is on a backplane segment that has a network feed.
	  2) Check the network connection to the backplane segment that the DCE is monitoring.

CsEvFormat/Event01020002
 	
{d "%w- %d %m-, %Y - %T"} The operational condition of component {O 2} is {T Syn5OpTable 3}. [component first digit - (1) Supervisory Module (2) Backplane (3) Module (4) Power Supply (5) Temp Sensor (6) Fan (7) Clock]. {t} (name - {m}). (Trap type: 0x02) - (event [{e}])
	CsPCause/Prob01020002
	
	CHASSIS PROBLEM
	
	PROBABLE CAUSES:
	  1) The component or sub-component listed in the description has a problem condition, either warning, non-fatal, or fatal.
	
	RECOMMENDED ACTIONS:
	  1) Check the component or sub-component listed in the problem description.

Table 6-4. **Token Ring NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message

CsEvFormat/Event01020003
 	
{d "%w- %d %m-, %Y - %T"} DCE {O 4} on ring {I 3} (ring ID {I 1}) whose last NAUN is {X 5} has detected a beaconing station. The beacon type is {T S5TRBeaconType 7}. {t} (name - {m}). (Trap type: 0x01020003) - (event [{e}])
	CsPCause/Prob01020003
	
	TR STATION BEACONING
	
	PROBABLE CAUSES:
	  1) The beacon type indicates the reason for the beacon. If reconfiguration, the ring will recover. If signal loss, the beaconing station is no longer receiving a valid signal. If bitstreaming, the beaconing station is no longer receiving a valid token or frame but is receiving a valid signal. If contention streaming, the station is indicating that monitor contention could not be resolved within one second.
	
	RECOMMENDED ACTIONS:
	  1) For signal loss and bit streaming, locate and inspect the cabling between the reporting station and its upstream neighbor, including any stations which may have recently inserted.
	  2) If monitor contention, isolate the problem by removing all concentrators in the ring until the ring recovers. Then remove stations one by one on the suspect concentrator.

CsEvFormat/Event01020004 {d "%w- %d %m-, %Y - %T"} DCE {O 4} has detected a splitter on ring {I 3} (ring ID {I 1}). {t} (name - {m}). (Trap type: 0x08) - (event [{e}])	**CsPCause/Prob01020004** TR SPLITTER DETECTED PROBABLE CAUSE: 1) A Splitter has been detected on the ring.

Table 6-**4.** **Token Ring NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message

CsEvFormat/Event01020005
 	
{d "%w- %d %m-, %Y - %T"} DCE {O 4} has detected a new active monitor (MAC address - {X 7}) on ring {I 1}. The last Nearest Upstream Neighbor Address (NAUN) is {X 5}. {t} (name - {m}). (Trap type: 0x08) - (event [{e}])
	CsPCause/Prob01020005
	
	DUPLICATE CHASSIS MODEL EXISTS
	
	PROBABLE CAUSES:
	  1) This model was created with a Network Address that is contained in a SynOptics 5000 chassis that has already been modeled.
	
	RECOMMENDED ACTIONS:
	  1) Destroy this HubSyn5xxx chassis model.
	  2) Use the Find View to locate a model with the same Network Address used to create this model. Then use Navigate to go up the modeling hierarchy to the HubSyn5xxx chassis model.

CsEvFormat/Event01020006
 	
{d "%w- %d %m-, %Y - %T"} DCE {O 4} (MAC Address - {X 5}) has detected a bridge deinserting from ring {I 3} (ring ID {I 1}). {t} (name - {m}). (Trap type: 0x01020006) - (event [{e}])
	CsPCause/Prob01020006
	
	NMM MODULE REMOVED FROM THE CHASSIS
	
	PROBABLE CAUSES:
	  1) The NMM that this NMM Agent model is associated with has been removed from the chassis.
	  2) The NMM is rebooting during a reconfiguration of the chassis model. The NMM module will not appear in the chassis' module list when the NMM is rebooting and the chassis model intelligence considers the module as pulled.
	
	RECOMMENDED ACTIONS:
	  1) Check the chassis to see if this was done intentionally.
	  2) Open the HubSyn5xxx's Chassis Group view and double click the Board Group entry. Check to see if the module's entry is in the table. Open the Chassis Modeling Information View off the HubSyn5xxx press the Reconfigure Chassis Models button.

Table 6-4.   **Token Ring NMM Agent Events and Alarms (Continued)**

Message in the Event Log	Alarm Manager Probable Cause Message
CsEvFormat/Event01020007 {d "%w- %d %m-, %Y - %T"} DCE {O 4} (MAC Address - {X 5}) has detected a new source routing bridge on ring {I 3} (ring ID {I 1}). {t} (name - {m}). (Trap type: 0x01020007) - (event [{e}])	**No Probable Cause Message**

CsEvFormat/Event01020008
 	
{d "%w- %d %m-, %Y - %T"} Station {O 4}on ring {I 3} (ring ID {I 1}) has been automatically wrapped by the NMM. Current port state is {T S5TPortStatus 5}. {t} (name - {m}). (Trap type: 0x08) - (event [{e}])
	CsPCause/Prob01020008
	
	TR AUTO WRAP
	
	PROBABLE CAUSES:
	  1) The element has been wrapped by the NMM.
	
	RECOMMENDED ACTIONS:
	  1) Locate the wrapped station and check its adaptor configuration.

CsEvFormat/Event01020009 {d "%w- %d %m-, %Y - %T"} Station {O 4}on ring {I 3} (ring ID {I 1}) has been automatically unwrapped by the NMM. Current port state is {T S5TPortStatus 5}. {t} (name - {m}). (Trap type: 0x08) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event01020010 {d "%w- %d %m-, %Y - %T"} DCE {O 4} has detected MAC address {X 5} inserting into ring {I 1}. {t} (name - {m}). (Trap type: 0x08) - (event [{e}])	**No Probable Cause Message**
CsEvFormat/Event01020011 {d "%w- %d %m-, %Y - %T"} DCE {O 4} has detected MAC address {X 5} deinserting from Ring {I 1}. {t} (name - {m}). (Trap type: 0x08) - (event [{e}])	**No Probable Cause Message**

Appendix A

Ethernet Modules

What Is in This Appendix

This appendix describes the views available from the Ethernet Module icon in the Logical Device view. The views allow access to network configuration information as well as traffic flow, error data, and statistics for the Ethernet modules installed in the SynOptics Series 5000 hub.

Ethernet modules provide flexible connectivity and improved functionality to the SynOptics Series 5000 hub backplane. Table A-1 shows the supported Ethernet hardware modules and their configurations.

Table A-1.   **Ethernet Modules and Their Configurations**

Module	Number of Ports	Port Types	Attachments	Local Channels
5304P Ethernet Host	10 (with per-port switching)	10BASE-F Fiber Optic	10 (1 per port)	3
5307 Ethernet Host	24	50-Pin Telco D (2 total; 12 ports each); RJ-45 (1 total; switchable from Telco port 24)	1	1
5307P Ethernet Host	24	50-Pin Telco D (2 total; 12 ports each); RJ-45 (1 total; switchable from Telco port 24)	24 (1 per port)	3
5308 Ethernet Host	24	RJ-45	1	0

Table A-1. **Ethernet Modules and Their Configurations (Continued)**

Module	Number of Ports	Port Types	Attachments	Local Channels
5308A Ethernet Host	24	RJ-45	1	1
5308-AF Ethernet Host	18	RJ-45 (16 total); AUI (1 total); 10BASE-F (1 total)	1	0
5308P Ethernet Host	24	RJ-45	24 (1 per port)	3
5310, 5310A, and 5310SA Ethernet Network Mgt.	0	N/A	1 to 3	0
5378-F Ethernet Host	20	10BASE-F (4 total; 1 per cluster) RJ-45 (16 total; 4 per cluster)	4 (1 per cluster)	2
5390 Xylogics Terminal Server	24	RJ-45	1	0

Ethernet Module Icon

This icon is a logical representation of the physical module, its location in the chassis, and its front panel interfaces and ports. The Ethernet Module icon provides graphical information about the module, local channels, and the individual ports and attachments to the hub's backplane. The logical modules are divided into several areas, each presenting information on the module, ports, attachments, and local channels. Figure A-1 shows an example of an Ethernet module icon.

NOTE	*Views and information that is exclusive to particular modules will be noted as such. Example: Redundancy Table (**5378-F**) (refer to page A-5). Views and information which do not specify particular modules are available in all modules discussed in this book.*

Figure A-1.   **Ethernet Module Icon**

Module Identification Labels

Module Number Label ———

Module Type Label ———

6

Module Type

Logical Port Icons ———

| 7 | LINK |

| 6 | S1 | LINK |

Local Channel Icons ———

B-S2

S1

LC-1

Close   Ctrl + c
 Navigate   ▸
Alarms
Performance
Notes...

Utilities   ▸
Module Notes
Module Configuration
Cluster *X* Configuration
Cluster *X* Performance
Local Channel *X* Perf.
Attachment 1 Config.
Attachment 1 Perf.

5378-F

5308

5308P
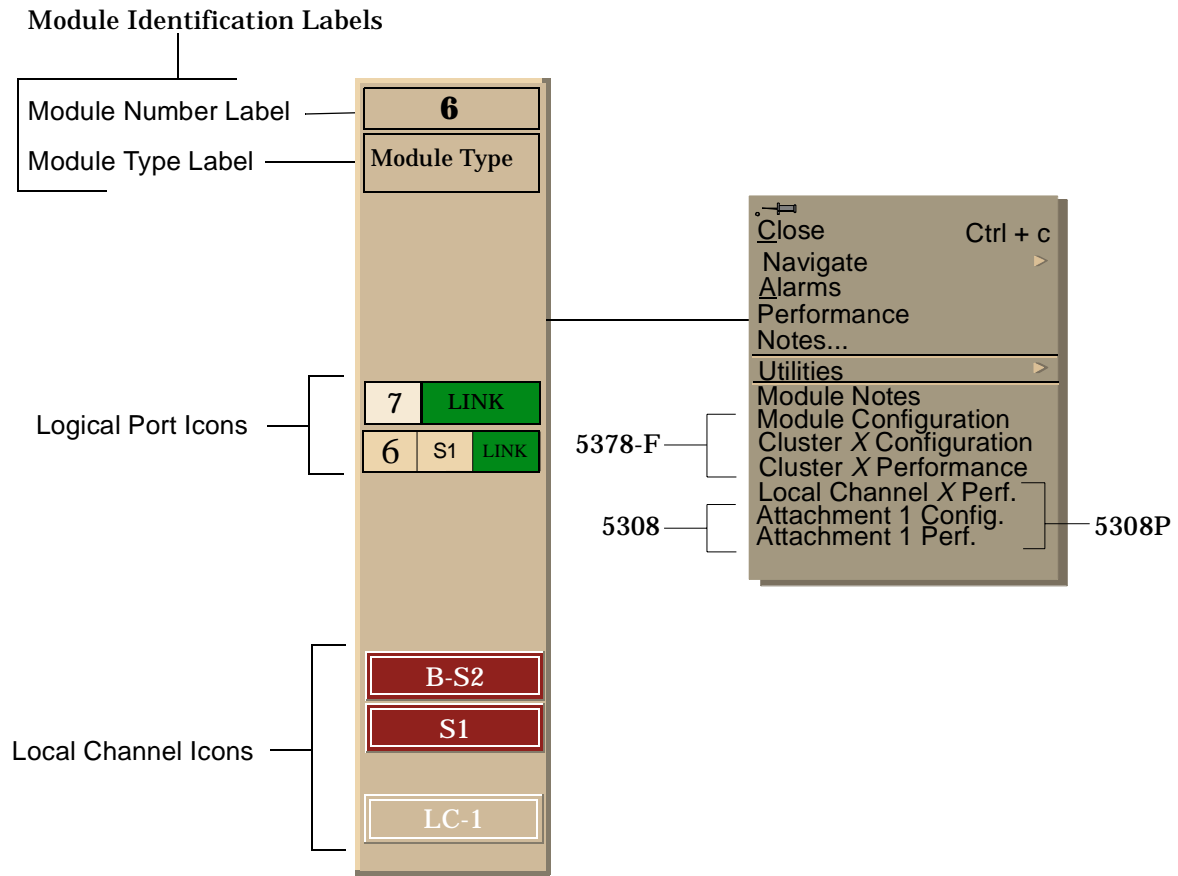
Module Identification Labels

The Logical Module Icon consists of two areas providing information pertaining to the module. These areas have the following functions:

Module Number Label
Displays the number identifying module's position in the hub, and provides a menu access zone for the module Icon Subviews menu. Double-click the module number label to open the Module Notes facility.

Module Type Label
Displays the type of module being modeled and provides a menu access zone for the module Icon Subviews menu.

Ethernet Module Icon Subviews Menu Selections

Table A-2 provides definitions of the Icon Subviews menu selections, described in this chapter. See Chapter 1, *Introduction* for information on *Accessing SPECTRUM Views from the Device Icon*.

Table A-2. **Ethernet Module Icon Subviews Menu Selections**

Menu Selection	Definition
Module Notes	Opens the SPECTRUM Notes facility for the module, described in the **SPECTRUM Views**.
Module Configuration	Opens the Configuration View for the selected module.
Attachment 1 Configuration (**5308**)	Opens the SynOptics 5000 Ethernet Attachment Configuration View.
Attachment 1 Performance (**5308**)	Opens the SynOptics 5000 Ethernet Attachment Performance View.
Redundancy Table (**5378**-**F**)	Opens the SynOptics 5000 Ethernet Module Redundancy Table which contains the Redundant Port Table.
Cluster *X* Configuration (**5378**-**F**)	Opens the Configuration View for the selected (*X*) cluster.
Cluster *X* Performance (**5378**-**F**)	Opens the Performance View for the selected (*X*) cluster.
Local Channel *X* Performance (**5308P**, **5378**-**F**, **5308A**, **5304P**, **5307**)	Opens the Performance View for the selected (*X*) local channel.

Module Configuration View

The Module Configuration View provides an attachment table as well as information on the configuration of the module, and allows modification of some values. To access this view do the following:

1. Within the Logical Device view, highlight the Ethernet Module icon.

2. From the Icon Subviews menu, select **Module Configuration**.

This view provides the following information:

Module
Displays the number specifying the location of the module in the hub.

Manufacture Date
Displays the date of manufacture of the module, in ASCII, following the format: yyyymmdd. For example, the value for April 13, 1993 is 19930413. If the date is not available, a zero length string is used.

Attachments
Displays the total number of backplane network attachment points on the module.

Attachment Changes
Displays the total number of attachment changes for the module that have been detected since cold/warm start of the agent or since the module was inserted.

Last Attachment Change
Displays the value of *SysUpTime* when the last attachment change on the module was detected. If none have been detected since cold/warm start of the agent, the value is zero.

Configuration Source
Displays the source of the configuration at the last module reset. Table A-3 lists and describes the possible configuration source values.

Table A-3.   **Configuration Source Values**

Value	Description
Other (1)	Unknown or some other value
DfltJmpr (2)	Default jumpers
PrmMem (3)	Permanent memory on the module
BrdCfg (4)	Saved configuration on the module
Sm (5)	Supervisor Module
SmDfltJmpr (6)	SM and default jumpers
SmPrmMem (7)	SM and permanent memory on the module

Configuration Changes
Displays the total number of configuration changes for the module that have been detected since the cold/warm start of the agent or since the module was inserted.

Set Current Attachment for All Attachments
Provides a button displaying, and allowing you to change, the current setting for all of the the attachment points. The position of the module within the hub, the setting of the backplane divider switch(es), and the mode setting all affect which backplane networks are valid. Also, some modules may put limitations on which backplane network(s) or local channel(s) may be used. Possible readings are ISOL, SEG-#, and LOC-#.

Module Attachment Table

The Module Attachment Table, at the bottom of the Module Configuration View provides information on each of the attachments on the module. Double-click any entry in this table to access the Attachment Configuration View, described later in this chapter. A Print button allows output of a copy of this table to a printer or a file. This table provides the following information:

Attachment
Displays the number identifying the network attachment point on the module.

Current
Displays the current channel or segment for this attachment (e.g., Seg_1).

Default
Displays the default channel or segment for this attachment (e.g., Seg_1).

Changes
Displays the number of changes for the attachment that have been detected since cold/warm start of the agent or since the module was inserted.

Last Change
Displays the value of SysUpTime when the last change on the attachment was detected. If none have been detected since cold/warm start of the agent, the value is zero.

Attachment or Cluster Configuration View

An Attachment or Cluster Configuration View is provided for each of the attachments or clusters on the module. These views provide information on the configuration of each specific attachment or cluster, and allow modification of some values.

1.   Within the Logical Device view, highlight the Ethernet Module icon.

2.   From the Icon Subviews menu, select **Attachment X Configuration** or **Cluster Configuration** .

This view provides the following information:

Module
Displays the number specifying the location in the hub of the module the attachment is on.

Attachment (5308P)
Displays the number specifying the location of the attachment on the module.

Cluster (5378-F)
Displays a letter uniquely identifying the selected cluster on the module.

Current Attachment
Provides a button displaying, and allowing you to change, the current setting for the attachment point. The position of the module within the hub, the setting of the backplane divider switch(es), and the mode setting all affect which backplane networks are valid. Also, some modules may put limitations on which backplane network(s) or local channel(s) may be used.

Last Change
Displays the value of SysUpTime when the last attachment change for the attachment point was detected. If none have been detected since cold/warm start of the agent, the value is zero.

Local Channel, and Cluster Performance Views

This view is provided for each of the local channels on the module. The performance views display a Multi-Attribute Line Graph that provides a general indication of network activity for the local channel. The attributes displayed are pre-selected and use colors to represent different statistics. The attributes are displayed as current values, average values, and peak values. The peak values display the highest statistical value reached since SPECTRUM began logging and the current time, or the time at which the peak value was reached if one exists. These views also have the following field:

1. Within the Logical Device view, highlight the Ethernet Module icon.

2. From the Icon Subviews menu, select **Local Channel X Performance**, or **Cluster Performance**.

This view provides the following information:

Local Channel (5308, 5308P, 5390) or Cluster (5378-F)
Displays the numbers identifying the position of the module and the exact local channel or cluster for which this performance information applies. The numbers are displayed in the following format: Module.Local_Channel (i.e., 6.1 means local channel 1 or cluster 1 on module 6).

Lin/Log

Toggles the right axis of the graph between linear and logarithmic representation.

Scroll to Date-Time

Allows setting of the viewing area of the graph to begin at a specified date and time.

Change Time Scale

Allows specification of the Y axis time scale for the graph.

Detail

Accesses the Local Channel Detail View, described later in this section.

Data Logging

Allows the option of logging polled data in the database.

Local Channel Detail View

The Local Channel Detail View provides two color-coded pie charts displaying a breakdown of the frames and errors. Access the Local Channel Detail View by clicking the **Detail** button in the Local Channel Performance View. Table A-4 and Table A-5 list the information provided by these pie charts. This view also contains the Local Channel field.

Table A-4. **Frame Breakdown Pie Chart Definitions**

Statistic	Definition
Good Frames	The total number of good frames detected on this local channel.
Collisions	The total number of collisions detected on this local channel.
Total (**5378**-**F**)	Total frames in cluster.

Table A-5. **Error Breakdown Pie Chart Definitions**

Statistic	Definition
Alignment	The total number of misaligned packets detected on this local channel.
FCS Errors	The total number of frames received that are an integral number of octets in length but do not pass the Frame Check Sequence.
Runts	The total number of runt packets received by this local channel. A runt packet is one byte less than the standard Ethernet frame of 64 bytes, not including preamble.
Giants	The total number of giant packets received by this local channel. A giant packet exceeds 1518 bytes, not including preamble.
OOW Collisions	The total number of Out Of Window collisions detected on this local channel.
Total (**5378**-**F)**	Total errors

Additional Statistics

Accesses two more color-coded pie charts displaying additional statistics, including a breakdown of frames. Three buttons at the bottom of each graph allow selection of the way in which data is represented (Total, Delta, and Accum). Another button, **Clear**, works in conjunction with the **Accum** button. For more information on these buttons, refer to the ***SPECTRUM Views***. Table A-6 and Table A-7 list the information provided by these pie charts. This view also has the Local Channel field, as described above.

Table A-6. **Additional Frame Breakdown Pie Chart Definitions**

Statistic	Definition
Bcast Frames	The total number of broadcast frames detected on this local channel.
Mcast Frames	The total number of multicast frames detected on this local channel.
Total (**5378-F**)	Total frames in this cluster.

Table A-7. **Additional Statistics Pie Chart Definitions**

Statistic	Definition
Fragments	The total number of fragmented frames detected on this local channel.
Long Events	The number of times that MAU jabber lockup protection (MJLP) was detected due to transmission of data that exceeded 5 msec in duration (Octet count greater than MaxFrame size). This information can be useful in identifying faulty stations.
Short Events	The number of fragments detected with ActivityDuration less than ShortEventMaxTime. ShortEventMaxTime is greater than 74 bit times and less than 82 bit times.
Rate Mismatches	The number of occurrences of out of spec rate bits. This indicates the number of times the FIFO buffer over-runs or under-runs due to transmission rate errors.
Backoff Fails	The number of times a frame was received on this port with collision and port activity time of a value greater than 552 to 560 bit time.
Auto Partitions	The number of times that this local channel was auto-partitioned by the hardware. This condition occurs when 32 consecutive collisions are detected on the port.
Short IPGs	The number of occurrences of too short IPGs (Inter-Packet Gaps before good packets) detected.

Table A-7.   **Additional Statistics Pie Chart Definitions (Continued)**

Statistic	Definition
Null Frames	The total number of empty frames detected on this local channel.
Total (**5378**-**F**)	Total additional statistics.

Logical Port Icons

These icons provide access to the views described below. The ports contain two labels, which are also described below.

shows an example of a Logical Port Label.

Figure A-2.   **Logical Port Icon**
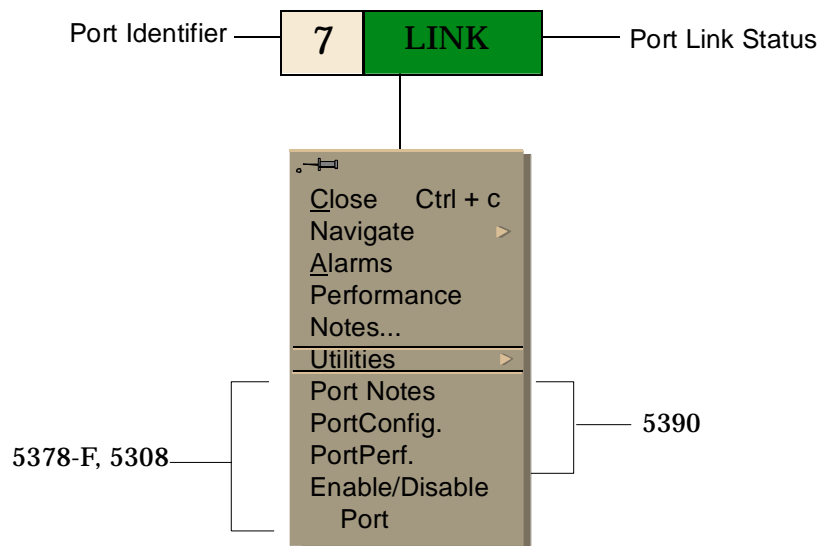
Logical Port Identification Labels

These labels provide the following information:

Port Identifier
Displays the number uniquely identifying this port on the module. Double-click this label to open the Port Notes facility.

Port Link Status
Displays the status of the port. Double-click this label to open the Port Configuration View. Table A-8 lists and describes possible Ethernet port status values and their corresponding colors. Table A-9 lists and describes possible status values of redundant ports operating in redundant pairs and lists the corresponding color for each status.

Table A-8. **Ethernet Port Status**

Status	Color	Description
INIT	Blue	Initializing
AUI	Yellow	AUI Port
LINK	Green	Enabled, Link
NLNK	Yellow	Enabled, No Link
PART	Blue	Partitioned, No Link
PART	Red	Partitioned, Link
APAR	Blue	Auto Partitioned, No Link
APAR	Red	Auto Partitioned, Link
TPAR	Blue	Timed Partition, No Link
TRAP	Red	Timed Partition, Link

Table A-9. **Redundant Ports Operating in Redundant Pairs**

Status	Color	Description
LFLT	Red	Local Fault
RACT	Green	Redundant Active
RSTB	Orange	Redundant Standby
RFLT	Red	Remote Fault

Logical Port Icon Subviews Menu Selections

Table A-10 provides definitions of the Icon Subviews menu selections, described in this chapter. See Chapter 1, *Introduction* for information on *Accessing SPECTRUM Views from the Device Icon*.

Table A-10. **Logical Port Label Icon Subviews Menu Selections**

Menu Selection	Description
Port Notes	Opens the Port Notes Facility.
Port Configuration	Opens the Configuration View for the selected port.
Port Performance	Opens the Performance View for the selected port.
Enable/Disable Port	Opens the Enable/Disable Port View.

Port Configuration View

The Port Configuration view provides information on the configuration of the selected port and allows modification of some values.

1.   Within the Logical Device view, highlight the Ethernet Module icon.

2.   From the Icon Subviews menu, select **Port Configuration**.

This view provides the following information:

Module
Displays the number specifying the location in the hub of the module the port is on.

Port
Displays the number uniquely identifying the selected port on the module.

Part Status
Provides a button displaying, and allowing you to change, the partition status of the selected port. Table A-11 lists and describes the possible partition status values.

Table A-11. **Partition Status Values**

Status	Description
Other	Partition status is unknown (Read Only)
Enabled	Port is enabled (Read-Write)
Partition	Port is partitioned (Read-Write)
AutoPartition	Port is auto-partitioned by the hardware (Read Only)
TimedPartition	Port is configured for timed partitioning (Read-Write)

Part Time (secs)
Displays the length of time to keep the port partitioned when a timed partition is done to the port. This value can only be written in the same request that sets the status of the port to TimedPartition. Afterwards, it indicates the amount of time left before the timed partition is completed, at which time the port status is changed to Enabled. This value is zero if the port is not timed partitioned or the amount of time is not available.

Link Status
Displays whether the port is receiving link status. Table A-12 lists and describes the possible link status values.

Table A-12.   **Link Status Values**

Value	Description
Other	Returned for AUI
Off	Link is not connected
On	Link is connected

On/Off apply to 10BASE-T and Fiber ports only.

Jabber Status
Displays the jabber status of the DTE(s) connected to the port. Table A-13 lists and describes the possible jabber status values.

Table A-13.   **Jabber Status**

Value	Description
Other	Unknown or other condition
Jabbering	Port is receiving jabber.
Ok	Port is not detecting any jabber.

Port Performance View

The Port Performance view is similar to the Local Channel Performance view, but contains statistics that apply only to the selected port. The Port Performance view also has the following field and button:

Port
Displays the numbers identifying the position of the module and the exact port for which this performance information applies. The numbers are

displayed in the following format: Module.Port (i.e., 6.1 means port 1 on module 6).

Detail

This button accesses the Port Detail View, described later in this section.

Port Detail View

The Port Detail View provides two color-coded pie charts displaying a breakdown of the frames and errors. Access the Port Detail View by clicking the **Detail** button in the Port Performance View. Table A-4 andTable A-5 list the information provided by these pie charts. This view also contains the Port field.

Additional Statistics

Accesses two more color-coded pie charts displaying additional statistics, including a breakdown of frames. Three buttons at the bottom of each graph allow selection of the way in which data is represented (Total, Delta, and Accum). Another button, **Clear**, works in conjunction with the **Accum** button. For more information on these buttons, refer to the *SPECTRUM Views*. Table A-6 and Table A-7 list the information provided by these pie charts. This view also has the Port field, as described above.

Enable/Disable Port (5378-F, 5308)

Use to enable or disable a particular port. The port state is displayed along with the following information:

Module
Displays the number specifying the location of the hub of the module containing the port.

Port

Displays the number uniquely identifying the selected port on the module.

Enable

Allows you to enable a specified port.

Disable

Allows you to disable a specified port.

Apply

Applies the current settings.

Local Channel Icon (5308P, 5378-F, 5304P)

These labels provide information as described below.

Figure A-3 shows an example of a Logical Port Label.

Figure A-3. **Local Channel Icon**

Local Channel Identifier

B-S2

Close   Ctrl + c
Navigate
Alarms
Performance
Notes...
Utilities
Attachment1Config
Attachment1Perf.
Cluster *X* Config.
Cluster *X* Perf.
Local Channel *X* Perf

5308

5378-F

5378-F, 5308P
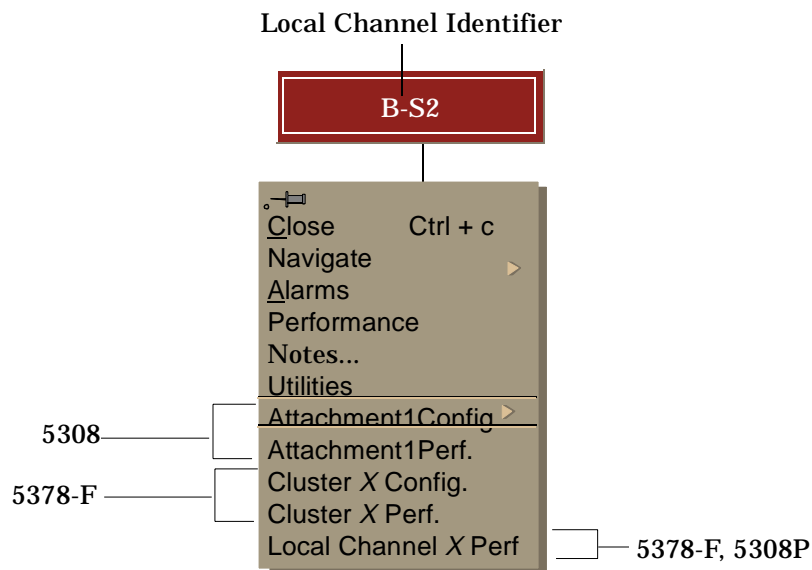
Local Channel Identifier
Displays the number uniquely identifying the local channel on the module and provides a menu access zone for the local channel Icon Subviews menu. Double-click the identifier to open the Local Channel Performance View.

Logical Port Icon Subviews Menu Selections

Table A-14 provides definitions of the Icon Subviews menu selections, described in this chapter. See Chapter 1, *Introduction* for information on *Accessing Device-Specific Subviews*.

Table A-14. **Logical Local Channel Icon Subviews Menu Selections**

Menu Selection	Description
Attachment 1 Configuration (**5308**)	Opens the SynOptics 5000 Ethernet Attachment Configuration View.
Attachment 1 Performance (**5308**)	Opens the SynOptics 5000 Ethernet Attachment Performance View.
Cluster *X* Configuration (**5378**-**F**)	Opens the Configuration View for the selected (*X*) cluster.
Cluster *X* Performance (**5378**-**F**)	Opens the Performance View for the selected (*X*) cluster.
Local Channel *X* Performance (**5308P**, **5378**-**F**, **5304P**)	Opens the Performance View for the selected (*X*) local channel.

Appendix B

Token Ring Modules

What Is in This Appendix

This appendix describes the generic views available from the Device view for the SynOptics Series 5000 Token Ring modules. These views allow access to network configuration information as well as traffic flow, error data, and statistics for the token ring modules installed in the SynOptics Series 5000 hub. This appendix focuses on the logical representations of the token ring modules.

This appendix describes the following:

- Token Ring modules and their configurations
- Logical module representations
- Logical port representations
- Configuration views

Token Ring Modules

SynOptics 5000 provides six Token Ring modules: 5510, the intelligent module discussed earlier in the document, 5502, 5505, 5505P, 5575-F, and 5575-C. The Token Ring modules provide connectivity to the SynOptics 5000 hub backplane. Table B-1 shows the configurations for the available Token Ring modules.

Table B-1.   Token Ring Modules and Their Configurations

Module	Ports	Port Type	Clusters	Attachment	Module Rings	Local Rings
5510				1-2		
5502	24	RJ-45 Passive		1	5	
5505	24	RJ-45 Active		1	5	1
5505P	20	RJ-45 Active		20	5	1
5575-F	11	RJ-45 (7 Stn)/ Fiber (4 RI/RO)	3	3	5	1
5575-C	11	RJ-45 (7Stn)/ DB-9(4 RI/RO)	3	3	5	1

Figure B-1. Logical Representation of a Token Ring Module
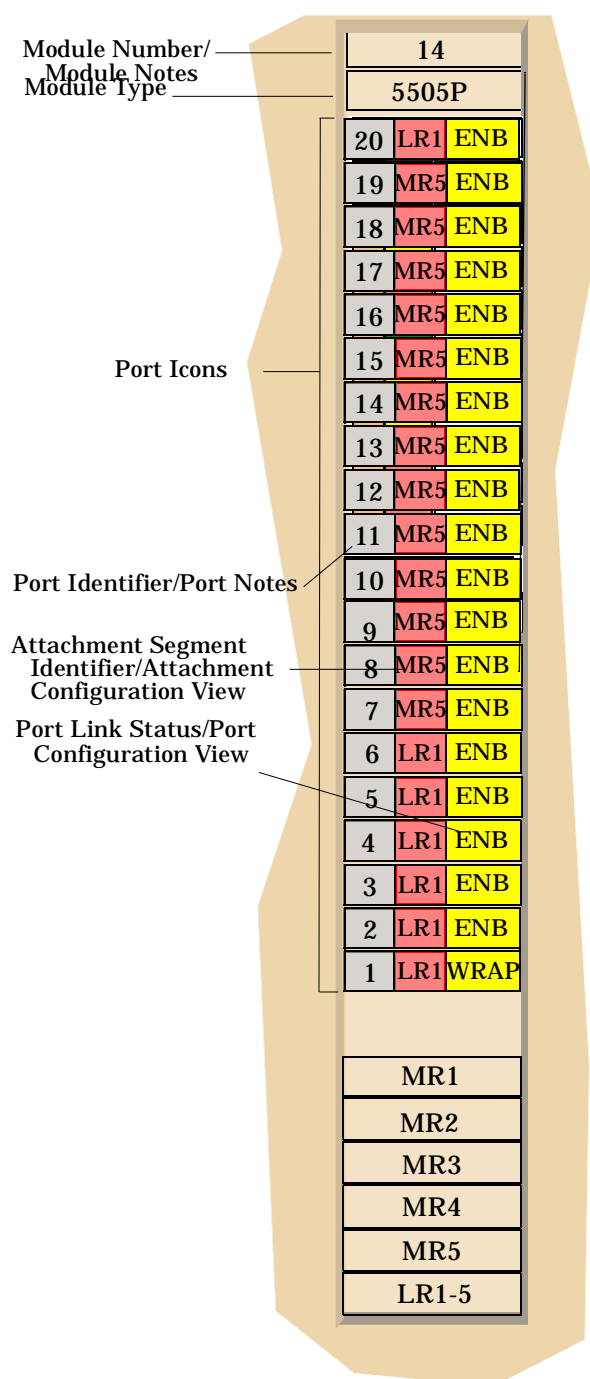
Token Ring Module Icon

The logical representation of SynOptics modules provides graphical information about the module, local rings, module rings, clusters, and the individual ports and attachments to the hub's backplane. This appendix describes the various views and information available from each area of the logical module. Figure B-1 displays a logical representation of a SynOptics module.

The Logical Module Icon consists of two areas providing information pertaining to the module. These areas have the following functions:

Module Number
Displays the number identifying the module's position in the hub and provides a menu access zone for the module Icon Subviews menu. Double-click the module number to open the Module Notes facility.

Module Type
Displays the type of module being modeled and provides a menu access zone for the module Icon Subviews menu.

Token Ring Module Icon Subviews Menu

Table B-2 provides definitions of the Logical Module Icon Subviews menu selections described in this chapter. See Chapter 1, *Introduction* for information on *Accessing SPECTRUM Views from the Device Icon*.

Table B-2.   **Token Ring Module Icon Subviews Menu Selections**

Menu Selection	Description
Module Notes	Opens the SPECTRUM Notes facility for the module, described in the ***SPECTRUM Views***.
Module Configuration	Opens the Configuration View for the selected module.
MR X Backplane Connection	Opens the Backplane Connection view for module ring number X where X represents the number identifying the ring (1-5).

Port Icons

The Port Icons each consist of three areas providing information pertaining to the port. These areas have the following functions:

Port Identifier
Displays the number uniquely identifying this port on the module. Double-click this number to open the Port Notes facility.

Attachment Segment Identifier
Displays an identifier indicating to which ring the port attachment connects and provides a double-click zone accessing the Attachment Configuration view. Table B-3 lists possible identifiers and their descriptions.

Table B-3. **Attachment Segment Identifier**

Identifier	Description
MR	Module Ring
LR	Local Ring

Port Link Status
Displays the status of the port. Double-click this status area to open the Port Configuration view. Table B-4 lists possible status values and their descriptions.

Table B-4. **Port Link Status Values**

Status	Color	Description
INIT	Gray	Initializing
ENB	Yellow	Enabled, No Phantom
WRAP	Blue	Wrapped, No Phantom
WRAP	Red	Wrapped, Phantom
TWRP	Blue	Timed Wrap, No Phantom
TWRP	Red	Timed Wrap, Phantom
NWRP	Blue	NMM Beacon Wrap, No Phantom
NWRP	Red	NMM Beacon Wrap, Phantom
SWRP	Blue	Wrong Speed Wrap, No Phantom
SWRP	Red	Wrong Speed Wrap, Phantom
PWRP	Blue	Permanent Wrap, No Phantom
PWRP	Red	Permanent Wrap, Phantom
INS	Green	Enabled, Phantom

Table B-5 provides definitions of the Logical Port Icon Subviews menu selections described in this chapter. See Chapter 1, *Introduction* for information on *Accessing SPECTRUM Views from the Device Icon*.

Table B-5. **Logical Port Icon Subviews Menu Selections**

Menu Selection	Description
Port Notes	Opens the Port Notes Facility, described in the ***SPECTRUM Views***.
Attachment Configuration	Opens the Configuration view for the selected port.
Station Port Configuration	Opens the Station Port Configuration view for the selected station port.
Enable/Disable Port	Opens the Enable/Disable Port dialog box allowing you to read or change the port state.

Configuration Views

These views provide detailed information on the module, attachment, and port configuration. Access each specific configuration view from the Icon Subviews menu for that area of the logical module (refer to Figure B-1). The following sections provide more detailed information on each configuration view.

Module Configuration View

The Module Configuration view provides an attachment table as well as information on the configuration of the module and allows modification of some values.

Access the Module Configuration view by selecting **Module Configuration** from the Icon Subviews menu for the module.

This view provides the following fields:

Module
Displays the number specifying the location of the module in the hub.

Manufacture Date
Displays in ASCII the date of manufacture of the module following the format: yyyymmdd. For example, the value for April 13, 1993, is 19930413. If the date is not available, a zero length string is used.

Attachments
Displays the total number of backplane network attachment points on the module.

Attachment Changes

Displays the total number of attachment changes for the module detected since cold/warm start of the agent or since the insertion of the module.

Last Attachment Change

Displays the value of SysUpTime when the last attachment change on the module was detected. If no change has been detected since cold/warm start of the agent, the value is zero.

Configuration Source

Displays the source of the configuration at the last module reset. Table B-6 lists the possible values and their descriptions.

Table B-6. **Configuration Source Values**

Value	Description
Other	Unknown or some other value
DfltJmpr (2)	Default jumpers
PrmMem (3)	Permanent memory on the module
BrdCfg (4)	Saved configuration on the module
Sm (5)	Supervisor
SmDfltJmpr (6)	SM and default jumpers
SmPrmMem (7)	SM and permanent memory on the module

Configuration Changes

Displays the total number of configuration changes for the module detected since the cold/warm start of the agent or since the insertion of the module.

Module Attachment Table

The Module Attachment Table, at the bottom of the Module Configuration View, provides information on each of the attachments on the module. Double-click any entry in this table to access the Attachment Configuration view, described later in this chapter. A **Print** button allows you to output a copy of this table to a printer or a file. This table provides the following information:

Attachment

Displays the number identifying the network attachment point on the module.

Current

Displays the current channel or segment for this attachment (for example, Loc_1).

Default
Displays the default channel or segment for this attachment (for example., MR_1).

Changes
Displays the number of changes for the attachment detected since cold/warm start of the agent or since the insertion of the module.

Last Change
Displays the value of SysUpTime when the last change on the attachment was detected. If no change has been detected since cold/warm start of the agent, the value is zero.

Default Speed
Displays the default speed.

Current Speed
Displays the current speed.

Attachment Configuration View

Each of the attachments on the module has an Attachment Configuration view. These views provide information on the configuration of each specific attachment and allow modification of some values.

Access one of these configuration views by selecting **Attachment Configuration** from the Icon Subviews menu for the desired port representation.

These views provide the following fields:

Module
Displays the number specifying the location in the hub of the module having the attachment.

Attachment
Displays the number specifying the location of the attachment on the module.

Current Attachment
Provides a button displaying (and allowing change of) the current setting for the attachment point. The position of the module within the hub, the setting of the backplane divider switch(es), and the mode setting all affect which backplane networks are valid. Some modules may limit the use of certain backplane network(s) or local channel(s).

Last Change
Displays the value of SysUpTime when the last attachment change for the attachment point was detected. If no change has been detected since cold/warm start of the agent, the value is zero.

Default Speed
Displays the default speed.

Current Speed
Displays the current speed.

Fault Indicator
Displays the number of faults.

Station Port Configuration View

The Station Port Configuration view provides information on the configuration of the selected port and allows modification of some values.

Access the Station Port Configuration view by selecting **Station Port Configuration** from the Icon Subviews menu for the desired port.

This view provides the following fields:

Module
Displays the number specifying the location in the hub of the module on which the port is located.

Port
Displays the number uniquely identifying the selected port on the module.

Class
Displays one of the values listed and described in Table B-7.

Table B-7. **Class Values**

Value	Description
other	unknown or some other type
ri	Ring In port
ro	Ring Out port
lobe	Lobe port
internal	Internal port which may be connected to a backplane ring.

Connector
Displays one of the port connector types listed in Table B-8.

Table B-8.   Port Connector Types

Value	Description
other	unknown or some other type
internal	no external connector
db9	DB9
rj45	RJ-45
fiberST	fiber ST

Media
Displays one of the values describing the port media type listed and described in Table B-9.

Table B-9.   Port Media Type Values

Value	Description
other	unknown or some other type
synFiber	SynOptics Fiber
stdFiber	Standard Fiber
copperActive	active copper
copperPassive	passive copper
mac	internal MAC
specialProc	internal special processor

Wrap Status
Provides a button with the choices listed and described in Table B-10.

Table B-10.   Wrap Status Selections

Status	Description
other	wrap status unknown
wrap	port wrapped
connect	port not wrapped
timedWrap	port timed wrapped
nmmBeaconWrap	beaconing station automatically removed by a network management module (NMM)

Table B-10.   **Wrap Status Selections (Continued)**

Status	Description
wrongSpeed Wrap	station with wrong speed automatically removed
permBeaconWrap	station permanently removed by an NMM since it attempted to deinsert and insert in the ring at a high rate while it beacons the ring

Wrap Time
Displays the length of time to keep the port wrapped when a timed wrap is done to the board or indicates the amount of time left before the timed wrap is completed. Shows a value of zero if the port is not timed wrapped and also if the amount of time is not available.

Strap Setting
Displays a value describing the strap (hardware jumper) setting for the RI/RO port trunk validation method. Table B-11 lists possible values and their descriptions.

Table B-11.   **Strap Settings**

Status	Definition
notSupported	a fiber port or not a RI/RO port
synoptics	use SynOptics method
none	no validation done

Validation Method
Provides a button with the following choices: notSupported, synoptics, none.

Phantom Changes
Counts the changes from noPhantom to phantom.

Phantom Status
Displays one of the values described in Table B-12.

Table B-12.   **Phantom Status Values**

Value	Description
other	status unknown
noPhantom	no phantom signal
phantom	phantom signal on

> **NOTE**
>
> *For RI/RO ports, this signal is driven by the 'lowlight' detector. For RI/RO ports that have the value of* none*, this value will always be phantom.*

Insert Status
Displays one of the values described in Table B-13.

Table B-13.   **Insert Status Values**

Value	Description
other	status unknown
notInserted	port not inserted
inserted	port inserted into the ring

Appendix C

FDDI Modules

What Is in This Appendix

This appendix describes the generic views available from the Device view for SynOptics FDDI modules. These views allow access to network configuration information and traffic flow, error data, and statistics for FDDI modules installed in the SynOptics Series 5000 hub. This appendix describes the following:

- FDDI modules and their configurations
- Logical module representations
- Configuration views
- Port Profile view
- Port Configuration view
- Port Parameters view
- Port LER Thresholds view

FDDI Modules and Their Configurations

SynOptics 5000 provides four FDDI modules: 5910S, the intelligent module discussed earlier in the document, and the 5905, 5902, and 5904 modules. The FDDI modules provide connectivity to the SynOptics 5000 hub backplane. Table C-1 shows the configurations for the available FDDI modules.

Table C-1.   **FDDI Modules and Their Configurations**

Module	Number of Ports	Port Type	Attachments
5910S FDDI Network Management Module	2	N/A	1
5905, 5902, 5904 FDDI Host Modules	6	FDDI UTP	1

The logical representation of SynOptics modules provides information about the module, the ports, and the attachments to the hub's backplane. This appendix describes the various views and information available from each area of the logical module. Figure C-1 displays a logical representation of a SynOptics FDDI module.

Figure C-1. **FDDI Module Icon**

Module Number/
Module Notes
Module Type

Backplane Connection/
Port Identifier/Port Notes
Attachment
Attachment Segment
Configuration View
Identifier/Attachment
Configuration View

Port Icons

| | 10 |
| | 5905 |

	N2	
8	M	CON
7	M	CON
6	M	CON
5	M	CON
4	M	CON
3	M	CON

Configuration View
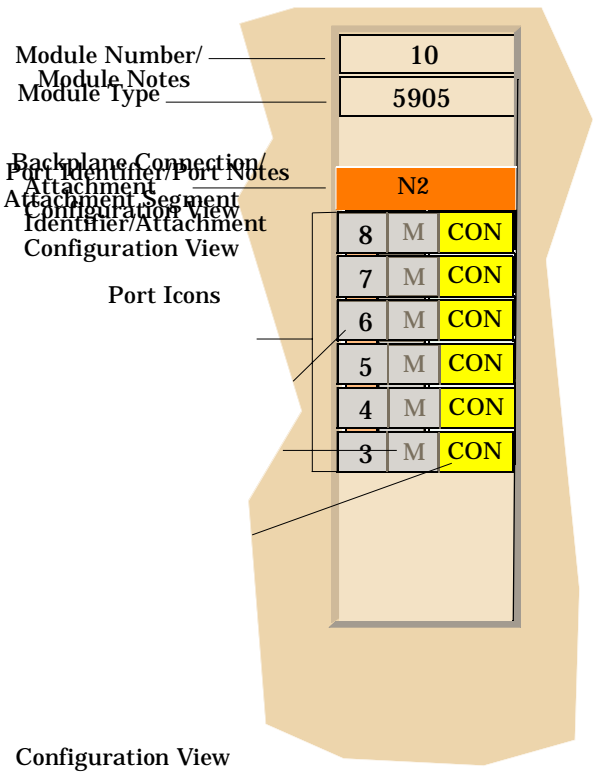
FDDI Module Icon

The logical representation of SynOptics modules provides information about the module, the ports, and the attachments to the hub's backplane. This appendix describes the various views and information available from each area of the logical module. Figure C-1 displays a logical representation of a SynOptics FDDI module.

The Logical Module icon consists of two areas providing information pertaining to the module. These areas have the following functions:

Module Number
Displays the number identifying the module's position in the hub and provides a menu access zone for the module Icon Subviews menu. Double-click the module number to open the Module Notes facility.

Module Type
Displays the type of module being modeled and provides a menu access zone for the module Icon Subviews menu.

FDDI Module Icon Subviews Menu Selections

Table C-2 provides definitions of the Logical Module Icon Subviews menu selections described in this chapter. See Chapter 1, *Introduction* for information on *Accessing SPECTRUM Views from the Device Icon*.

Table C-2.   **Logical Module Icon Subviews Menu Selections**

Menu Selection	Description
Module Notes	Opens the SPECTRUM Notes facility for the module, described in the **SPECTRUM Views**.
Module Configuration	Opens the Module Configuration View for the selected module.
Network Attachment Configuration	Opens the Attachment Configuration View for the selected module.

Port Icons

The Port Icons each consist of three areas providing information pertaining to the port. These areas have the following functions:

Port Identifier
Displays the number uniquely identifying this port on the module. Double-click this number to open the Port Notes facility.

Attachment Segment Identifier
Displays an identifier indicating relationship. Possible identifiers are as
follows: "M" (Master) or "S" (Slave).

Port Link Status
Displays the status of the port. Double-click this status area to open the Port
Configuration view. Table C-3 lists possible status values, their corresponding
colors, and descriptions of each value.

Table C-3.   **Port Link Status Values**

Status	Color	Description
DIS	Red	Disabled, Port is Active
DIS	Blue	Disabled, Port is Inactive
CON	Yellow	Enabled, Port is Inactive
SBY	Red	Standby
ACT	Green	Enabled, Port is Active

Port Label Icon Subviews Menu Selections

Tabel C-4 provides definitions of the Logical Port Icon Subviews menu
selections described in this chapter. See Chapter 1, *Introduction* for
information on *Accessing SPECTRUM Views from the Device Icon*.

Table C-4.   **Logical Port Icon Subviews Menu Selections**

Menu Selection	Description
Port Notes	Opens the Port Notes Facility, described in the ***SPECTRUM Views***.
Port Profile	Opens the Port Profile view for the selected port.
Port Configuration	Opens the Port Configuration view for the selected port.
Port Parameters	Opens the Port Parameters view for the selected port.
Port LER Threshold	Opens the Port LER Threshold view for the selected port.

Configuration Views

These views provide detailed information on the module, attachment, and port
configuration. Access each specific configuration view from the Icon Subviews
menu for that area of the logical module (refer to Figure C-1). The following
sections provide more detailed information on each configuration view.

Module Configuration View

The Module Configuration view provides an attachment table as well as information on the configuration of the module and allows modification of some values.

Access the Module Configuration view by selecting **Module Configuration** from the Icon Subviews menu for the module.

This view provides the following fields:

Module
Displays the number specifying the location of the module in the hub.

Manufacture Date
Displays in ASCII the date of manufacture of the module following the format: yyyymmdd. For example, the value for April 13, 1993 is 19930413. If the date is not available, a zero length string is used.

Attachments
Displays the total number of backplane network attachment points on the module.

Attachment Changes
Displays the total number of attachment changes for the module detected since cold/warm start of the agent or since the insertion of the module.

Last Attachment Change
Displays the value of SysUpTime when the last attachment change on the module was detected. If no change has been detected since cold/warm start of the agent, the value is zero.

Configuration Source
Displays the source of the configuration at the last module reset. Table C-5 lists the possible configuration source values and descriptions for each value.

Table C-5. **Configuration Source Values**

Value	Description
Other (1)	Unknown or some other value
DfltJmpr (2)	Default jumpers
PrmMem (3)	Permanent memory on the module
BrdCfg (4)	Saved configuration on the module
Sm (5)	Supervisor
SmDfltJmpr (6)	SM and default jumpers
SmPrmMem (7)	SM and permanent memory on the module

Configuration Changes
Displays the total number of configuration changes for the module detected
since the cold/warm start of the agent or since the insertion of the module.

Set Current Attachment For All Attachments
Provides a button with which to choose NET 1-5, other, or ISOL.

Module Attachment Table

The Module Attachment Table, at the bottom of the Module Configuration
view, provides information on each of the attachments on the module. Double-
click any entry in this table to access the Attachment Configuration view,
described later in this chapter. A **Print** button allows you to output a copy of
this table to a printer or a file. This table provides the following information:

Attachment
Displays the number identifying the network attachment point on the module.

Current
Displays the current channel or segment for this attachment (for example,
NET_2).

Default
Displays the default channel or segment for this attachment (for example.,
NET_1).

Changes
Displays the number of changes for the attachment detected since cold/warm
start of the agent or since the insertion of the module.

Last Change
Displays the value of SysUpTime when the last change on the attachment was
detected. If no change has been detected since cold/warm start of the agent,
the value is zero.

Attachment Configuration View

Each of the attachments on the module has an Attachment Configuration
view. These views provide information on the configuration of each specific
attachment and allow modification of some values.

Access one of these configuration views by selecting **Network Attachment
Configuration** from the Icon Subviews menu.

These views provide the following fields:

Module
Displays the number specifying the location in the hub of the module having
the attachment.

Attachment
Displays the number specifying the location of the attachment on the module.

Current Attachment
Provides a button displaying (and allowing change of) the current setting for the attachment point. The position of the module within the hub, the setting of the backplane divider switch(es), and the mode setting all affect which backplane networks are valid. Some modules may limit the use of certain backplane network(s) or local channel(s).

Last Change
Displays the value of SysUpTime when the last attachment change for the attachment point was detected. If no change has been detected since cold/warm start of the agent, the value is zero.

Port Profile View

The SynOptics FDDI Port Profile view contains information specific to each port for the SynOptics FDDI 5000 series. This view provides the following information:

Board
Displays the unique value for each board that contains FDDI ports.

Port
Displays the unique value for each port. This value ranges between 1 and n.

Partition Status
Displays the partition status of the port. The Partition value partitions the port from ring. The Enable value allows the port to connect to the ring. If a timed partition is desired, timedpart is written to this object at the same time a time value is supplied.

Partition Time
Displays the duration of the port partition period.

PC Line State
Indicates the line state received by the port. Possible states are Quiet_line_state, Idle_line_state, Master_line_state, Halt_line_state, Active_line_state, Line_state_unknown, and Noisy_line_state.

Active Time
Displays how long this port has been active.

PCM Break Count
Displays the number of times the port enters the pcm break state.

PCM Active Count
Displays the number of times the port enters the pcm active state.

PCM Trace Receive Count
Displays the number of times this port receives a trace signal.

PCM Trace Propagation Count
Displays the number of times the Nmm propagates a trace signal through this port.

PCM Last Trace
Displays the number of time ticks since the last trace occurs.

Port Configuration View

The SynOptics FDDI Port Configuration view displays network configuration information for the SynOptics FDDI 5000 Series. This view provides the following information:

SMT Index
Displays the value of the SMT index associated with this port.

Port Index
Displays a unique value for each port within a given SMT.

Hardware Present
Indicates the presence of underlying hardware support for this MAC object. Possible states are Present and NotPresent.

Connect State
Displays a value representing the port's connection policies desired in the node.

PCM State
Displays the state of this Port's PCM state machine. The values are Off, Break, Trace, Connect, Next, Signal, Join, Verify, Active, and Maint.

PC Type
Displays the value of the port's PC_Type.

PC Neighbor
Displays the type of the remote port as determined in PCM. This variable has an initial value of none, and other values of A, B, S, and M.

PC Withhold
Displays the value of PC_Withhold. The values are None, M-M, otherincompatible, and Pathnotavailable.

PC Line State
Indicates the Path(s) into which this port is currently inserted. The possible values are Idle_Line_State, Isolated, Local, Secondary, Primary, Concatenated, and Thru.

MAC Placement
Indicates the MAC, if any, whose transmit path exits the station via this port. The value is zero if there is no MAC associated with the port. Otherwise, the MACIndex of the MAC is the value of the variable.

Remote MAC Indicated
Displays the indications in PC-Signalling of the intent to place a MAC in the output token path to a port.

PMD Class
Indicates the type of PMD entity associated with this port. Values are Multimode, Single-mode1, Single-mode2, Sonet, Low-cost-fiber, Twisted-pair, Unknown, and Unspecified.

BS Flag
Assumes the value of the BS_Flag; values are True and False.

EB Error Count
Displays a count that should as closely as possible match the times an Elasticity Buffer Error has occurred while in active line state.

Connection Capabilities

pc-mac-lct
Displays a flag internal to the Physical Connection Management (PCM) that indicates that a MAC can be used for the Link Confidence Test.

pc-mac-loop
Displays a flag internal to the PCM that indicates that a MAC Local Loop can be used for the Link Confidence Test before the connection is made active.

Port Parameters View

The SynOptics FDDI Port Parameters view contains port parameter information for the SynOptics FDDI 5000 Series. This view provides the following information:

SMT Index
Displays the number of SMT implementations (regardless of their current state) on this network management application entity. The value for this variable must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.

Action

Returns a default value of other. Table C-6 gives a description of each action variable.

Table C-6.   Action Values

Action Variable	Description
Other	Results in a badValue error.
Connect	Generates a Connect signal to ECM to begin a connection sequence.
Disconnect	Generates a Disconnect signal to ECM.
Path_Test	Initiates a station Path_Test.
Self_Test	Initiates a station Self_Test.
Disable_A	Causes a PC_Disable on the A port if the A port mode is peer.
Disable_B	Causes a PC_Disable on the B port if the B port mode is peer.
Disable_M	Causes a PC_Disable on all M ports.

Port Index

Displays a unique value for each port. Each value ranges between 1 and n.

CE State

Displays the current status of the primary and secondary paths within this station. The values are Concatenated, Separated, and Thru.

Maintenance Line State

Displays the current port line state of the MAC. Possible values associated with the node are Quiet_line_state, Idle_line_state, Master_line_state, Halt_line_state, Active_line_state, Line_state_unknown, and Noisy_line_state.

Available Paths

Displays the path types available in the station. Choices are primary, secondary, and local.

Connection Policies

Displays the connection capabilities in effect in a node. Choices are pc-mac-lct and pc-mac-loop. Pc-mac-lct represents a flag internal to the Physical Connection Management (PCM) that indicates that a MAC can be used for the Link Confidence Test. Pc-mac-loop represents a flag internal to the PCM that indicates that a MAC Local Loop can be used for the Link Confidence Test before the connection is made active.

Set Requested Paths

Indicates the paths requested for this MAC. Possible values are Primary, Secondary, Primary+secondary, and ???.

Requested Paths
Displays a list of permitted Paths which specifies the Path(s) into which the MAC may be inserted Possible values are Local, Secondary-alternate, Primary-alternate, concatenated-alternate, secondary-preferred, Primary-preferred, Concatenated-preferred, and Thru.

Port LER Thresholds View

The SynOptics FDDI Port LER Thresholds view contains Line Error Rate information for the SynOptics FDDI 5000 Series. This view provides the following information:

SMT Index
Displays a unique value for each port.

Port Index
Displays a unique value for each port within a given SMT.

LEM Reject Count
Displays a link error monitoring count of the times a link has been rejected.

LEM Error Count
Displays the aggregate link error monitor error count, set to zero only on station initialization.

LCT Failure Count
Displays the count of the consecutive times the link confidence test (LCT) has failed during connection management.

LER Cutoff
Displays the link error rate estimate at which a link connection will be broken. It ranges from 10**-4 to 10**-15 and is reported as the absolute value of the base 10 logarithm. The default is 7.

LER Alarm
Displays the link error rate estimate at which a link connection will generate an alarm. It ranges from 10**-4 to 10**-15 and is reported as the absolute value of the base 10 logarithm of the estimate. The default is 8.

LER Estimate
Displays a long term average link error rate. It ranges from 10**-4 to 10**-15 and is reported as the absolute value of the base 10 logarithm.

LER Condition
Displays the condition becomes active when the value of *fddiPORTLerEstimate* is less than or equal to *fddiPORTLerAlarm*. This will be reported with the Status Report Frames (SRF).

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